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STORAGE

VOL. III. TORONTO, MARCH, 1922 No. 1

THE CANADIAN VETERINARY RECORD

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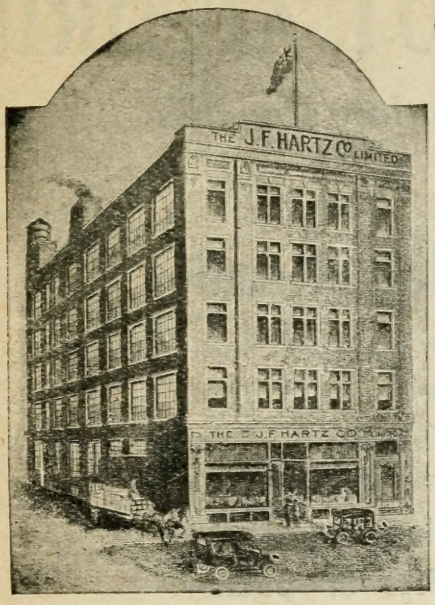

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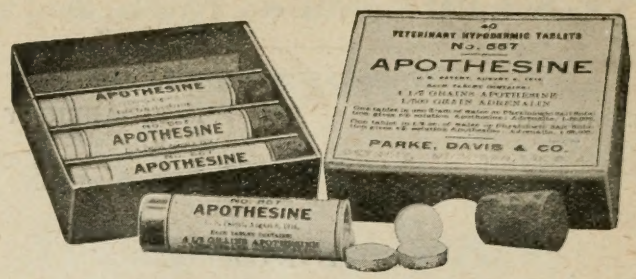

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Editorial

NEW OFFICES.

On and after March 1st, 1922, the Canadian Veterinary Record will occupy new offices at ROOM 6, 1127 Keele Street, Toronto. All correspondence should be sent to that address.

DOMINION REGISTRATION.

The proposed Dominion Veterinary Registration Act has now been printed and copies have been sent to the Secretary of each Veterinary Association in Canada.

Each Association should carefully consider the proposed Act and endeavour to have it acceptable to all concerned.

OUR ADVERTISERS.

The advertisements appearing in the columns of the Record are of reputable business firms. The advertising columns of this paper are not accessable to concerns offering proprietary veterinary medicines, secret remedies or quack cures. We do not lend ourselves to the advertising of any concern or preparation which would be likely to damage the profession.

The firms whose advertisements appear in our columns have faith in the veterinary profession and the courage of their convictions. We therefore make an appeal to our Readers to patronize our advertisers for by helping them you help us.

OUR PROFESSION

We are convinced that in no country in the world is the profession more in need of cohesion than in Canada. With cohesion will follow greater advancement, the two terms being synonymous at the present time as far as the veterinary profession is concerned. Any movement which has for its object cohesion and advancement should be actively supported.

The Record is deserving of the support of the profession generally, as it is intended to be a genuine attempt to serve. Those who are familiar with journalistic work are in a position to realize that such a publication, small and unpretentious as it is, entails considerable worry and expense.

Last year the Record was mailed to every practising veterinarian in Canada as far as we have been able to determine from association membership lists. Just enough paid subscriptions were received to cover the bare costs of printing and mailing.

We are commencing the year quite optomistic. Provincial Veterinary Associations have all promised to help by appealing to their Members. We are all in a position to help our profession without making big sacrifices, and any effort made will eventually assist us individually besides helping the other fellow. Therefore stimulate interest in the Record by becoming actively interested and associated in it yourself.

First—By forwarding to the Editor records of interesting cases or clinical conditions met with in practice.

Second—By writing the Record expressing your opinion regarding any topic of interest to the profession as expressions voiced are helpful and educative.

Third—By constructive criticisms of editorials, articles, case and clinical reports published in the Record.

Fourth—Reporting anything which might be considered new in the use and action of any therapeutic agent, be it one drug, one remedy, or a combination of both.

Fifth—By giving an honest straight forward opinion of the Record as a professional publication with suggestions which might contribute to its betterment.

In consideration of the above it is our sincere desire that each Veterinary Surgeon subscribing to the Record will regard the publication in the light of his own property, and therefore help as much as possible to improve its quality.

GOVERNMENT HIGHWAYS.

The construction of Government roads proceeds apace in all parts of the Dominion. Cities are being linked together by highways involving costs running into millions of dollars. In many cases it is seen that these highways are nothing more or less then speed ways, built apparently with one consideration in view:—a good road for the motorist.

In the farming supplement of an Ontario daily paper, we read,—"The Brant County U.F.O. is by no means favourable to the Provincial Highway Plans of the Hon. F. C. Biggs and at the Annual Meeting at Brantford were not afraid to come out and say so. The say-so culminated in a request for the construction of a dirt road alongside the Provincial Highway between Brantford and Hamilton to enable horse-drawn vehicles to continue. It was claimed that under certain weather conditions it was impossible for farm teams to pull loads to market and instances were cited where loads started out but had to be abandoned. In one case a horse fell and broke its leg and had to be shot. With an eight-foot strip of dirt at the side there would be more room for horse-drawn traffic, and under better and safer conditions."

This article describes a disgraceful state of affairs which should call forth strong protest from the friends and representatives of the horse. Many of these roads are nothing less than tar glazed, acadamized strips of pavement, slippery and dangerous to navigate for anything except rubber-tired mechanically-propelled traffic. It seems a pity that the Department has not made some provision for a dirt track alongside the pavement. This could be constructed at a comparative small cost and would be a boon to horsemen. On many of the large paved highways in Europe a dirt track exists between the pavement and the ditch. Most of the slower moving traffic occupies this track, thus leaving the main roadway clear for the fast moving vehicles.

It is hoped that the protest started by the Brant County U. F. O. will spread and be productive of results because the horse still holds a time-honoured, age precedented position over all other forms of road locomotion and will still continue to function to a large extent upon the public highways. His service is a very useful one and we should assist in trying to secure a safe piece of roadway for him to travel upon.

Observations and Theories on the Causes of Chick Mortality

A. B. Wickware,

Animal Pathologist, Health of Animals Branch, Co-operating with the Poultry Division, Dominion Experimental Farms, Ottawa.

Of all the blighting influences operating against success in poultry culture, chick mortality appears to stand alone. Since the advent of the artificial incubator and brooder, the losses appear to have increased, and in no other line of investigation has so much painstaking research been done as in the attempt to solve this problem. Workers upon every continent have approached the subject from different angles and one theory after another has been adduced to explain the inordinate death rate.

In reviewing the literature at present available, the diversity of opinion regarding the causes of chick mortality leaves one rather perplexed as to what really constitutes a serious disorder.

The term "White Diarrhoea" becomes almost synonymous with sickness when applied to young chicks and nearly all the disorders to which they are subject have been correlated under the one head. This designation arose from the appearance of kidney excretions urates in excessive amount, either alone or mixed with the droppings.

In 1908 Rettger and Harvey published a paper entitled "Bacillary White Diarrhoea of Chicks" and their subsequent investigations were summarized in bulletins published from time to time. During the same year, Morse published a circular under the auspices of the Bureau of Animal Industry on Coccidiosis of Chicks as a cause of White Diarrhoea. Since that time a great many workers have taken up the study of chick mortality and campaigns have been started in the United States for the elimination of white diarrhoea from certain districts.

From our own experience in Canada, White Diarrhoea does not appear to assume the same alarming proportions as is observed in the United States; nevertheless our death rate is large enough to cause grave concern.

It is with the object of reviewing the causes and possible causes of chick mortality in Canada that the present article is written.

In the past it has been customary, when called upon to explain the cause of death of certain chicks, to grasp that sheet-anchor of explanation "defective incubation" and the more one studies the problems of artificial rearing of chicks, this sheet-anchor becomes a veritable beaconlight pointing out the reef on which many young lives are lost. Errors in incubation have been disclosed and many remedies have been pointed out, but the mortality rate still continues high in spite of all endeavours. Lack of humidity, excess of carbon dioxide, poor ventilation, variation in room temperature, etc., have been cited as factors influencing poor yield, and yet under the most favorable conditions, poor hatches are often the result, while under the most adverse circumstances, the exceptional hatch which proves the rule, is occasionally obtained.

In order to understand the basic principles underlying chick mortality, all predisposing factors must be considered along with specific diseases, and the following tabulation shows the classes into which they enter:

1. Care of eggs for hatching purposes.
2. Defective incubation.
3. Hereditary influences from the use of poor breeding stock.
4. The influence of certain egg constituents on chicks.

5. The influence of pullets upon their progeny as compared to hens.
6. Improper feeding methods.
7. Specific diseases.

1. Care of eggs for hatching purposes.

What relationship does the improper care and handling of eggs bear to chick mortality? This is a question that has given rise to a great deal of speculation.

Although it was commonly thought that the chillings of eggs and the average method of handling during transportation had a decided influence upon their hatching qualities no definite data was available in support of the view.

In work conducted at the Experimental Farm it has been shown that eggs will withstand several degrees of frost when packed in cartons without seriously affecting the hatch. In fact, excellent hatches, in point of numbers, were obtained from eggs so packed, which had been subjected to a temperature considerably below freezing point for periods of five minutes to five hours, but such a result is of limited value unless a complete record is kept of its bearing upon the subsequent death rate of the hatched chicks.

That transportation has a decided influence upon the fertility of hatching qualities of eggs can be judged by a study of the following table, comprising data gathered from a series of experiments conducted in 1914 to show the percentage rate of fertility and hatchability of eggs at the Central Experimental Farm as compared to the results obtained at Branch Farms with eggs from the same pens, incubated at approximately the same date.

If such marked variation occurs under these conditions is it not reasonable to assume that the same blighting influence is exerted upon the chicks which emerge from the shells? The fact must not, however, be overlooked that different handling of incubators may have had an important bearing on the ultimate results.

Date shipped to Branch Farms & set at Ottawa	Farm	No. of eggs set	Percent. fertile	Percent. fertile hatched	Difference in % fertile in favour of	Difference in % fertile hatch in favour of
April 20th	Lethbridge	300	54.8%	7.4%	Ottawa 29.6%	Ottawa 43.9 p.c.
" "	Ottawa	300	84.4%	51.9%		
May 27th	Nappan	30	95.5%	Nil	Nappan 21.9%	Ottawa 28.4 p.c.
" "	Ottawa	30	73.6%	28.4%		
July 2nd	Agassiz	30	28.6%	37.5%	Ottawa 63.9%	Ottawa 36.8 p.c.
" "	Ottawa	30	92.5%	74.32%		
" "	Lacombe	27	25.9%	28.5%	Ottawa 66.6%	Ottawa 45.8 p.c.
" "	Ottawa	27	92.5%	74.3%		

In the case of Nappan versus Ottawa, it can be readily seen that both incubators were at fault as the percentage of hatched chicks was nil in one instance and very low in the other whereas the first tests showed a high percentage of fertility for both places.

2. Defective Incubation.

Defective incubation is undoubtedly responsible for a larger number of deaths than any other factor connected with the rearing of chicks. By defective incubation is meant the lack of some essential such as heat, moisture, good ventilation, etc. In spite of modification of incubators to meet these demands, good success may be attained one year and utter failure follow the next. Why this should be, is not clearly understood, and yet the fact remains that in man's endeavour to approximate nature's efforts, there is still some vital factor not yet discovered.

It is reasonable to assume that where one meets with a large number of dead in the shell chicks, the constitutional vigor of the remainder of the hatch cannot be any too good. They may live for a short time but one by one drop off until the law, "The survival of the fittest" is again upheld.

What influence, if any, does the male element necessary for fertilization, have on chicks?

During the season of early spring hatching, poor fertility of eggs is the rule, and hatches of twenty to thirty per cent. and less are not unusual. This phase of hatching brings one to the question of potency and prepotency and a consideration of this question opens up a large field for research.

In theorizing on this point, one would be apt to conclude that at this early season, some weakness of the germ plasm of the male element "spermatazoon" prevented the proper fertilization of the ovum. To substantiate such a conclusion, however, one would expect to find chick embryos in different stages of development up to the three weeks period, but actual experience shows that such is not the case. Very few dead in the shell chicks are found and those that hatch are usually raised with a minimal loss while the remainder of the eggs remain perfectly sterile. Is it possible that like micro-organisms of the bacterial class, under adverse conditions, there are some huskies which are capable of fertilizing ova while the great majority meet with an untimely death. It is also a well known fact that in nature the periodicity of broodiness and desire to procreate is a well established law, and hatching is seasonal, being almost entirely confined to the warm spring months. Is it not possible that in the desire for early chicks this fundamental law of nature is being disturbed with consequent harmful influence on the progeny?

3. Hereditary Influence from the use of poor breeding stock.

Just how far poor stamina and imperfect development influence progeny are debatable points. It is a commonly accepted law and doctrine that like begets like or in other words, poor parent stock will produce poor offspring. This is true to a certain extent but in actual experience it does not follow that a male or female bird with physical imperfections must necessarily produce weakling chicks. On the other hand, poorly developed progenitors may beget chicks with strong constitutional vigor providing the ancestors of the former have not been lacking in perfect physical qualities. The danger lies in the continued use of such stock and therefore, in breeding for those qualities which will ensure strong vigorous chicks, it is better to constantly select birds of perfect type, free from constitutional defects. It has been proven that certain deformities and racial characteristics are transmitted from parent to offspring both in man and animals and a concrete example can be pointed out in the slipwings so constantly met with where line breeding is carried on for selective characteristics, such as feather barring, colour, etc. It therefore, appears to be a logical conclusion that other characteristics such as a lack of virility may be inherited, and so predispose chicks to diseased condition or death from natural causes.

4. What influence have the constituents of the egg upon its hatchability and the viability of the chicks.

A great deal of work has been done on the composition of eggs from a chemical standpoint to show the relationship of the various elements by the developing embryo.

It has been ascertained that the shell furnishes its quota of lime salts to the growing chick.

Mottram, in an article entitled, "Fatty acids of hen's eggs" shows that there is a wide variation in the fatty acid content of eggs from different fowls, though in any one given fowl, the content is not variable but constant.

It has been shown by Mottram and by Eaves that unsaturated fatty acids are utilized by the chick embryo and further that fish oils are readily transported to the eggs of wild fowls, for they are wanted for the nutriment of the embryo. In quoting from Imrie, Mottram states that the foetus is

greedy for unsaturated fats, these fats being used for the production of energy. Is is not possible that the energy derived from eggs showing a high fatty acid content would be relatively greater than that obtained from those showing a low content?

Following out this theory, an attempt was made by the writer to determine what effect eggs showing a high fatty acid content had on the virility of chicks as compared to those hatched from eggs of low content. Owing to pressure of work however, only preliminary tests were made, and the more practical application of the theory was not worked out. It is however, a line of investigation well worthy of steady application.

5. What influence have pullets upon their progeny as compared to hens?

If one were to ask this question to a representative gathering of poultrymen, a number of answers diametrically opposed would in all probability be received. This question has been a matter of argument for years and opinions are often misleading, owing to the fact that no record is kept of the subsequent death rate in either case. It is such a record that gives a true index of the influence of pullets and hens upon their progeny for whereas the percentage of hatched chicks may be almost the same, the difference in mortality rate will vary greatly. This difference in mortality rate must of necessity depend upon the lack of some fundamental characteristic such as stamina or vigour.

The idea that chicks hatched from healthy well developed pullets have not the same stamina to resist disease as those hatched from hens, has been, and is still ridiculed by most poultrymen. Very little comparative work has been done on this phase of the question and yet individual experiments point to such being the case. In a summary of experiments extending over a five-year period carried on at Experimental Farm, Sidney, B.C., evidence is given of such influence and a tabulated statement of the results is herewith reproduced.

Chicks hatched from hen eggs vs. chicks from pullet eggs.

Ages.	Number put in brooder.	Died first week.	Died second week.	Died third week.	Total died in 3 weeks.	Per cent. died in 3 weeks.	Kind of brooder used.
Hens	200	13	18	4	35	17.5	Winford
Pullets	200	20	59	14	93	46.5	Electric
Hens	200			3	3	1.5	Queen Coal
Pullets	200	29	85	61	175	87.5	Burner

The extraordinary difference in the mortality rates may be somewhat above the average but it graphically points to a possible cause of the heavy losses amongst chicks.

The heavy mortality with the pullet egg chicks would indicate that it is very unwise to use pullet eggs for incubation.

The pullet stock used were strong, vigorous birds, weighing from 4½ to 6 pounds. The breeding of the hens and pullets was the same; the living conditions were identical. The male birds used in both instances were vigorous cockerels and yearlings. The experience of the previous four hatching seasons was similar although not quite so marked.

6. Improper feeding methods.

Various methods of feeding chicks have been advocated, most of these being based upon traditional beliefs rather than upon actual experimental results.

Some poultrymen recommended feeding hard boiled egg during the first few days of existence with other products such as dry oatmeal, etc., and in rural districts this is largely the method employed at the present time.

Naturally amongst the poultry fraternity are to be found faddists who discountenanced the feeding of eggs in this manner and recommended as a substitute the raw eggs mixed with the feed, the white alone or the raw yolk by itself. Such opinions are bound to carry a certain amount of weight and faddists' theories in time become traditional beliefs. In the majority of cases such beliefs are based upon the number of chicks raised one year as compared with another and no thought is given to the possible influence of the weather, hatching conditions or origin of eggs.

That feeding plays a very important part in the welfare of chicks may be readily seen by a careful examination of the following table, covering experiments conducted at the Poultry Division of the Central Experimental Farm:

TABLE SHOWING EFFECTS OF VARIOUS RATIONS ON MORTALITY AND GROWTH OF YOUNG CHICKS

No. Pen	No. of chickens at beginning of experiment.	Mortality during first week.	Mortality during second week.	Mortality during third week.	Mortality during fourth week.	Mortality during fifth week.	Mortality during five weeks.	No. of chickens alive at end of five weeks.	Total average gain in ounces during five-wk. period.	RATION
1	42	1	8	7	8	7	31	11	1.67	Basal ration
2	42	6	6	8	5	1	26	16	3.32	B. R. and meat
3	42	4	2	2	3	7	18	24	3.44	B. R. and eggs
4	42	1	8	8	1	10	28	14	2.79	B. R. and milk
5	42	3	2	6	5	8	24	18	2.81	B. R. and greens
6	42	2	9	5	0	14	30	12	3.54	B.R. and meat and greens
7	42	2	4	3	0	1	10	32	4.29	B. R. eggs and greens
8	42	6	4	2	1	2	15	27	3.43	B. R. milk and greens
9	42	4	3	4	0	0	11	31	4.25	B. R. meat, milk & greens
10	42	3	1	0	0	0	4	38	5.26	B. R. meat, eggs & greens
11	42	4	2	1	0	0	7	35	4.70	B. A. milk, eggs & greens
12	42	1	2	3	1	0	7	35	5.85	B. R. meat, do., do., do.

The basal ration consisted of commercial chick feed scattered in the litter, with a dry mash of equal parts of bran, middlings and cornmeal before them in a hopper. The chicks used in the experiments were all incubated at one time in a mammoth incubator and were brooded under identical condition. Furthermore, the chicks in each pen weighed approximately the same at the commencement of the experiment.

All things being equal, it is only reasonable to conclude that the lack of some vitamine was responsible for the heavy death rate, the average mortality of the three poorest pens being 71.4% as against an average rate of 14.2% for the three best pens. Some slight allowance must be made for the individuality of each chick, but the variation is too great to be ascribed solely to this cause.

The object of this paper has been to point out as briefly as possible the factors which may and do predispose chicks to disease and which as prime causes, independent of diseases lead to the untimely death of many young chicks. As a consideration of the specific diseases of chicks at this time, would occupy too much space. A paper dealing with this subject shall be reserved for a subsequent issue of the Record.

Canadian Plants Injurious In Pastures And On The Range.

H. B. Sifton, Department of Botany, Toronto University.

PART I.

In a series of articles on Canadian stock-poisoning plants, this group may justly claim more space than either of those previously dealt with. It contains a large number of plants, it has in all probability occasioned more losses, and it is much more difficult to deal with than either of the other groups. In the case of hay and ground feeds it is possible to exclude objectionable substances when one has once learned to recognize them. When cattle are running at large however, they will eat anything which tempts them, and the only way to avoid harm with certainty is to allow them to pasture only in places where poisonous weeds are not prevalent. There are large tracts of our Canadian grazing lands from which it is impracticable to eradicate harmful plants, and these tracts must either be pastured or allowed to go to waste. As a result there are numerous cases of poisoning in pastures, and in this paper we shall consider family by family, the plants responsible.

GRASS FAMILY or GRAMINEAE

INDIAN CORN, (Zea mais) is so well known as a forage plant that its inclusion in this article will doubtless cause surprise. It is a fact however, that "Cornstalk Disease" has been responsible for the death of large numbers of cattle, it being recorded that in one county alone, in the state of Nebraska, more than 1500 deaths resulted from it in the two seasons for which records were kept. The malady results from a custom rare in Canada, but widely practised in some of the corn-raising states. In these districts it is common for the ears of corn to be harvested from the standing stalks, which are then used as pasture. In certain seasons cornstalk disease causes the death of many of the cattle thus fed. The symptoms somewhat resemble those of Sorghum poisoning (described below), but careful chemical investigations have failed to show the presence of the hydrocyanic acid, present in Sorghum, which has become poisonous. Many believe that the disease is related to the presence of various moulds on the stalks, but there is as yet no definite proof of this theory.

There has been a prevailing belief that danger could be obviated by allowing cattle in the field for short intervals only until they had become accustomed to the new feed, and by supplementing it with other forage. The investigations of Alway and Peters in Nebraska seems to disprove this however. These investigations found further that more than one-quarter of the deaths occur during the first week of pasturing and a comparatively small proportion take place after a month in the field.

No cure has been discovered for the disease. By cutting and shocking the stalks when ripe, however, the danger is overcome.

THE SORGHUMS, (Andropogon Sorghum), including Broom Corn, Kaffir Corn, etc., are valuable forage plants though not so widely used in North America as many other grains. Violent poisoning sometimes takes place when animals are turned into fields containing these plants in a wilted condition. The trouble is due to the presence of hydrocyanic or prussic acid which is produced during the wilting process. The production is said to be especially plentiful in stunted plants and those of second growth.

The symptoms are very striking. This acid is the most rapid poison we know, taking effect within a few seconds. In a case recorded by Glover and Robbins 21 cows out of a herd of 32 were dead within half an hour after being turned into a field of Sorghum. Giddiness and staggering are the first symptoms. The animal soon falls. The pulse is slow and breathing is difficult. Spasms and twitching of the muscles are followed by numb-

ness in the limbs, delirium and death. Bloating is sometimes, but not always, present.

Owing to the rapid action of the poison, treatment is unsuccessful in most cases, but sometimes a cure can be affected if the quantity eaten is not large. Sugar is an antidote, and large doses of corn syrup or molasses have been used with good effect. Another effective antidote is prepared as follows: Dissolve one ounce of sodium carbonate and one-half ounce of ferri sulphas each in a pint of water and keep separate in tightly corked bottles. When treatment is necessary mix the solutions and administer at once. One quart of the mixture is sufficient for a cow.

Injections of the atropin sulphate are useful to maintain heart action until the antidotes have taken effect and the results of the absorbed poison have passed off.

PORCUPINE GRASS (Stipa spartea), and **NEEDLE GRASS (Stipa comata)** are two grasses growing on the prairies which produce mechanical injuries. The base of the fruit, where it joins the plant, is exceedingly hard and sharp and above this are numerous stiff bristles, pointing upward. These seeds get caught in the wool of sheep and work into the flesh causing much discomfort. When eaten they penetrate the walls of the alimentary tract in the same way, working into the tissues of the mouth and throat and even of the stomach and intestines. The plants make good forage at seasons when the fruits are lacking.

THE SANDBUR (Cenchrus tribuloides) has hard spiny burs enclosing the spikelets and seeds, which work into the tissues of the mouth and jaws, sometimes causing large permanent swellings.

SQUIRREL-TAIL GRASS (Hordeum jubatum) was mentioned in this connection in a former article (Can. Vet. Record, March, 1921).

LILY FAMILY or LILIACEAE

DEATH CAMAS (Zygadenus venenosus) grows in the Prairie Provinces and is known also as Poison Sego. The two common names originate from the fact that the bulbs have been sometimes mistaken for those of Camas and Wild Sego which are used for food by the Indians. It is poisonous to all animals, but is reported to have done most damage to sheep, which eat the grass-like leaves greedily in early spring when the herbage has not yet become plentiful. The bulbs, resembing young onions, are sometimes pulled up when the ground is soft after rain, and are equally poisonous. After flowering, the plant dries up. The seeds are extremely poisonous, but are rarely eaten in pasture.

The alkaloid **Zygadenin** is present in the plant in varying amounts according to the locality. When sheep have eaten it they become uneasy, with loss of co-ordination of movement, and labored, irregular breathing. Later come nauseated, frothing and regurgitation and, if enough of the poison has been consumed, complete collapse. The animal lies prostrate, its breathing scarcely perceptible. The drug also has a paralyzing effect on the heart, and it is due to this that death finally ensues.

In young lambs which receive the poison with their mothers' milk dysentry manifests itself, death following usually in a few hours.

For Camas poisoning stockmen have used various remedies. Soda, salt, lard and fat pork are the most common, but the results from their use are not satisfactory. The best antidote is a solution of potassium permanganate and aluminium sulphate. 5 to 10 grains of each, dissolved in a pint of water form a sufficient dose for a sheep. Horses require 15 to 20 grains of each, and cattle, thirty to fifty grains. When administering potassium permanganate it is essential to have the chemical completely dissolved, for otherwise small particles, sticking to the walls of the mouth and throat, will cause sores to form. Strychnine is useful in cases of prostration, but if used alone will not produce a cure. The kidneys may be stimulated with caffein or theobromin. Excitement should be avoided.

In early spring the young leaves of Death Camas are to be found before the grass, which they somewhat resemble, has grown sufficiently to supply abundant pasture. They are from five to fifteen inches long, and may be distinguished from grass leaves by their greater succulence, by the lack of the ligule which is present where a grass leaf joins the stem, and by the fact that they grow from a small bulb which is buried two inches in the earth and, as mentioned above, resembles a young onion. Later the flower stem appears, growing from five to twenty inches high. It bears at its summit a loose, elongated cluster of rather small yellowish or greenish white flowers.

THE SWAMP CAMAS (Zygadenus elegans) resembles Death Camas, but is larger and coarser. In some regions it is very plentiful, and is responsible for cases of poisoning, containing as it does the same poisonous substances as its smaller relation. Mr. C. H. Morse, District Forest Inspector for Alberta, states that among cattle on the Forest Ranges of that province the Swamp Camas is responsible for more trouble than Death Camas. The taste of both is somewhat bitter, so that they are usually avoided in pastures when grass is plentiful.

FALSE HELEBORE (Veratrum viride) is found in moist places in Eastern Canada and in British Columbia. It is very poisonous, but is eaten by animals only in rare cases, for it has a acrid, burning taste.

The drug **veratrin,** which is contained in the plant, produces according to Dr. Winslow, "salivation, vomiting or attempts at vomiting, purging, abdominal pain, muscular weakness, loss of power and general paralysis, muscular tremors and spasms, and occasionally convulsions. The pulse is unaltered at first but later becomes infrequent and compressible and finally thread-like and running. The respiration is shallow, the temperature is reduced, the skin is cold and clammy. There is semi-consciousness, loss of sight, and death from asphyxia."

Tannic acid is a chemical antidote for the poison, and should be accompanied by demulcents to relieve the burning. Heart and respiratory stimulants such as amyl nitrate, alcohol or atropin are usually necessary. In smaller animals warm water is good to assist vomition.

The plant, a coarse perennial from two to eight feet high, grows from a thick erect rootstock. It has large, entire, oval leaves, with sharp points, and bases sheathing the stem. They are smooth on top and hairy beneath, with conspicuous parallel veins. The small flowers are yellowish green, with the parts moderately spreading, and are borne in a broad, open cluster of narrow racemes.

THE CALIFORNIA SWAMP HELLEBORE (Veratrum californicum) is the western form, growing in valleys among the mountains. It has the same effects as the preceding, and resembles it, except that the flowers are whitish, with long, narrow parts, and arranged in a looser cluster.

BUTTERCUP FAMILY or RANUNCULACEAE

THE LARKSPURS, (Delphinium spp.) belong to this family. They grow plentifully in the west, and form a serious problem on the cattle ranches of Alberta. Mr. Morse says "a careful study of places particularly dangerous to stock has convinced us that of the really poisonous plants, Delphinium is certainly the one most to be reckoned with." Similar reports come from the western United States. One American authority places them next to the Locoes in the number of animals killed, and it has been estimated that in the State of Colorado alone an annual monetory loss of $40,000 is sustained through their agency.

It is in early spring that the leaves and roots contain most poison. The greater proportion of deaths occur when the plant is about 4 or 5 inches high, at which time it is greedily eaten by cattle. In autumn, when the ground is covered with snow, the seed capsules of the tall Larkspurs protrude and are eaten with fatal results, as the poison becomes concentrated

in the mature seed.

Stockmen have blamed Larkspur poisoning for deaths among sheep as well as cattle, but Marsh and Clawson (1916) proved that sheep can eat large quantities without any bad results, owing probably to its prompt excretion by their kidneys.

Two poisons **delphinin** and **staphisagrin** are present, the former being more harmful. The plant acts as a local irritant and a nerve depressant. The symptoms are stiffness, straddling gait, breathing at first slow and then rapid, constipation, abdominal pain, and in later stages vomiting, from which death often results by suffocation.

The appetite remains good and the brain is normal, though the animal is easily frightened. Bloating sometimes occurs before death and always comes rapidly afterward. Quivering and weakness are prominent, the legs crumpling under the animal. Post-mortem features are congestion of the heart, lungs and central nervous system, and inflammation, especially of the oesophagus and the pyloric end of the fourth stomach.

During treatment, the animal should be kept quiet, with its head higher than the rest of the body. Epsom salts should be given to relieve constipation. In addition Marsh and Clawson recommend injections of a combination of physostigmin salicylate, pilocarpin hydrochloride, and strychnin sulphate, supplemented by hypodermics of whiskey where weakness is very pronounced.

The many species of Larkspur growing in the Canadian West may be divided into two groups, the low Larkspurs, from six inches to three feet tall, whose leaves dry up and die at seeding time, and the tall species, three to six feet high, which retain their leaves for a longer period and are dangerous in snow of late autumn. All have leaves with deep palmate lobes and flowers in loose, elongated clusters. The flowers are provided with long spurs. Both sepals and petals are colored, varying from bright blue to pale violet and yellow. The small seeds are contained in erect horned capsules.

MONKSHOOD (Aconitum) is a genus of plants whose species have a very wide distribution throughout both hemispheres, and are all poisonous. A European form is the source of the drug **Aconite,** and an Indian species is used by natives of the Himalayas as an arrow poison. **Aconitum columbianum** is found in the lower parts of the mountains of the west, and sometimes poisons stock. Several species occur also in the east, the cultivated form especially, and should be guarded against.

The effects are chiefly on the heart and bloodvessels, and the following symptoms are produced: slow, weak pulse, shallow and labored breathing, dilation of pupils, extreme weakness (accompanied in horses by profuse sweating), nausea, repeated attempts at swallowing due to a feeling of constriction in the throat, and in many cases, bloating. Death usually is due to asphyxia.

An important part of the treatment is the use of heart and respiratory stimulants. Tannic acid is recommended as an antidote. The stomach pump or emetics should be used when possible.

The plant arises from a perennial rootstock. In its younger stages it is often confused with Larkspur, the leaves being very similar. The large flowers are arranged similarly to those of the Larkspur but may be easily distinguished by the absence of spurs and the presence of the "hood" formed by one of the colored sepals. The three to five carpels are partially united and in fruit form a horned seed capsule as in the Larkspurs.

THE PASQUE FLOWER or PRAIRIE CROCUS, (Anemone patens), is a beautiful plant of the Prairies and British Columbia. It has been accused of causing death of sheep in Alberta. The hairs with which it is plentifully provided, form felt-like balls in the stomach, and in addition the acrid poison anemonin is present.

The large purplish flowers resembling a small crocus appear early in March on leafless stalks covered with a dense coat of silky hairs. Later the three-divided leaves appear, provided also with a coating of hairs. These hairs persist throughout the summer and are a valuable means of identification, though they appear more scattered when the plant is full grown. The numerous carpels form in fruit a fluffy head, with the long styles developed into feathery tails.

(To be continued in the next number of The Record.)

GUNNS LIMITED GIVE BANQUET TO VETERINARIANS

The Inspectors of the Health of Animals Branch, Department of Agriculture, at Toronto, were tendered a complimentary banquet by Messrs. Gunns Limited on December 30th, 1921.

The dinner was served in the dining rom of the Company and combined all the enjoyable features of a cabaret but with due regard to the existing dry laws of the Province of Ontario.

General John A. Gunn, C.M.G., D.S.O., received the guests and subsequent events proved that he was not only an excellent host, but also a tactful entertainer. From the beginning of the dinner which was preceded by a stirring strains of the bag pipes until the time arrived for speech making there was not a dull moment. The program was to say the least varied. There were comic songs, with banjo accompaniment, chorus singing by the guests, bagpipe selections, Scotch songs, recitations and dances, boxing and imitation cock fights.

At one period of the evening it seemed that the perfect enjoyment which predominated, was to be marred by the near arrest of Dr. Irvine. Just as the second course was finished a burly policeman entered the room and singling out Dr. Irvine thought he detected the presence of spiritus frumenti in his glass of ginger ale. At first it seemed a real disaster and there was an ominous silence in the room as Dr. Irvine with some heat endeavoured to convince the guardian of the law, that he was mistaken. The curtain was rung down on this act by General Gunn and not until then, was it seen, that the affair was staged as a joke.

During the evening the Inspectors of Toronto presented General Gunn with a handsome desk writing set and French clock as a mark of their appreciation and esteem for his distinguished military career. After an address was read the presentation was made by Dr. McIntosh. In thanking the Inspectors for their souvenior, which apparently came as a great surprise, General Gunn spoke of the excellent relationship which existed between the heads of the Company and the Inspectors in the Plant. He emphasized the difference in the feeling existing to-day and that of fifteen years ago, when Federal Inspection was first put into operation. "In those days," remarked the General, "the Packers thought the devil had got loose."

Dr. F. Torrance was Chairman, a position which he admirably filled in his usual genial and tactful manner. Among the guests of the evening were,—His Worship Mayor McGuire, Hon. Manning Doherty, Ontario Minister of Agriculture, Mr. W. B. Roadhouse, Deputy Minister of Agriculture; Dr. Robt. Barnes, Dr. C. D. McGilvray, Colonel C. H. L. Sharman, Lieut.-Col. T. C. Evans, and Messrs. O. L. White, J. Taylor, D. W. Gunn, A. C. MacVicar, H. Horton, Alex. McKenzie, Donald Gunn, Andrew Gunn, and J. Nicholson.

The Editor will be pleased to receive articles for publication in the Record from members of the profession. All correspondence should be addressed Canadian Veterinary Record, 1127 Keele St., Toronto, Ontario.

What the Veterinary Profession Means to the Live Stock Industry

C. D. McGilvray, Principal, Ontario Veterinary College.

The successful and profitable practice of agriculture has and will always be dependent to a large extent on live stock development. Even in the face of the present prices for live stock one is justified in advocating the improvement and increased production of live stock. Among the obstacles to successful and profitable live stock development is the lessening of herd increases, as a result of losses from preventable diseases, and the liability of health restrictions being imposed by other countries interfering with the marketing of animals. The latter phase is well exemplified in the so-called embargo which Great Britain has been maintaining against Canadian cattle. In the controversy which has taken place regarding the embargo the outstanding feature is the testimonial to the invaluable services which the veterinary profession have been able to render the live stock interests in Canada. In this connection it is worthy to note that Canada for the last 30 years has remained entirely free from the so-called animal plagues, such as foot and mouth disease and contagious pleuro-pneumonia of cattle. Likewise glanders and dourine in horses have been eradicated, hog cholera largely suppressed, and only occurring as isolated outbreaks, while sheep scab and cattle mange have been successfully checked.

Canada Fortunate

The live stock interests of Canada have been particularly fortunate as yet in having escaped the ravages of the so-called animal plagues. This reduction and freedom from diseases affecting animals has not been accidental, but has been due to the well directed effort of the veterinary profession in co-operation with live stock owners. Achievements of this kind are a matter of satisfaction to all concerned, and the veterinary profession has every reason to be proud of the opportunity of demonstrating the value of veterinary science to the live stock industry. Many of those responsible for safe-guarding the health of animals have adhered to a high standard of ethical conduct and have unselfishly extended their professional skill without avarice or benefiting by the purely commercial tendencies. The reputation which we have gained for healthy live stock should be carefully protected as a national asset, and every available agency should be employed for the further conservation of the health of farm animals. In safeguarding the health of live stock "eternal vigilance is the price of safety" and necessitates an efficient veterinary service working in close co-operation with live stock owners.

If any of the so-called animal plagues gained a foothold in Canada one can readily appreciate the consequent losses which would accrue to the live stock industry, by depleting herds, the dislocation of live stock traffic, the interference with marketing, and the large expenditure of public funds entailed to suppress such diseases. While the maintainance of a veterinary sanitary service to prevent and cope with diseases of animals may primarily benefit the owner of live stock, it reciprocally benefits the public at large by preserving the economic production and maintenance of live stock interests to such an extent as will ensure a sufficient abundant wholesome supply of meat and other food products for the use of the consumer. Such a service to be effective must be directed towards preventing animal diseases gaining an entrance into the country from without its borders and to control and suppress those which may already exist.

Export Trade

The public should be fully advised of the fact that the entire export trade

in live stock is based on the fundamental essential of freedom from disease, and likewise that the export dressed meat and bacon trade is based on the same requirement. Great Britain and the United States have imposed as the essential requirement for the admission and acceptance of live stock from other countries, that such animals shall be free from contagious disease, and that no serious contagious disease exists in the district from which they originated. These facts have to be furnished through the medium of inspection made and certificates from properly qualified and thoroughly trained veterinary surgeons. In the case of meats and meat food products not a single pound can enter Great Britain or the United States unless derived from healthy animals, killed, dressed and processed under the direct supervision of veterinary surgeons properly trained and qualified. For this purpose a staff of several hundred specially trained veterinary surgeons is maintained by the Government as inspectors. To prevent the entrance of diseased animals into Canada animal quarantine and inspection stations are provided at suitable points, through which all animals must enter and be carefully examined by veterinary inspectors to determine their freedom from disease. This precaution has prevented the entrance into Canada of foot-and-mouth disease and pleuro-pneumonia of cattle.

Veterinary Inspection

In order to control and suppress contagious diseases within the country a large number of veterinary inspectors are available for the purpose of visiting individual farms and taking such action as may be necessary and to inspect and test animals for export to enable their admission to other countries. In order to enable our dressed meats and meat food products to be exported to other countries nearly two hundred specially trained veterinarians are stationed at the large abattoirs and packing plants throughout Canada. By this means all animals are carefully inspected before and after slaughter and the meats government stamped and certified as healthy, wholesome food, which enables their export and acceptance by other countries. From the foregoing it can be readily understood that if these branches of veterinary usefulness were not available our export trade in live stock and meat and meat food products would be shut off.

This fact has not been as well known as might be, nor as fully appreciated in some respects as should be, and as a result the veterinary profession has not received due recognition and credit for the services rendered to live stock interests. To some extent the fault may be largely due to veterinarians themselves, "in hiding their light under a bushel" and not giving their work more publicity through the medium of the press. In surveying the claims of other branches of service to animal industry the same modesty is not always observed and a maximum of praise is apt to be given to a minimum of effort.

Veterinary Research

In a recent editorial of the Free Press, Aberdeen, Scotland, in referring to veterinary science, the following remarks appeared: "If for once the landowners, the owning and tenant-farmers, the laborers of the land, and all the vast interests concerned with live stock development, would combine to demand that veterinary research as well as education were splendidly subsidized they would be put on a worthy footing. It would pay the nation as no other expenditure could. The treatment of the veterinary profession is, and has been, niggardly and ignorant in the extreme. It is a disgrace to us before the world. We must take off our hats to the veterinary profession, for they have done much and learned much with little encouragement. They have not really been helped to be efficient, yet it is surprising how efficient they have become. The veterinary surgeon is a hard-worked, clever, but poor man, yet the status of his profession will never be raised to its proper dignity, and remuneration until those concerned fully recognize the importance—nay, the need— of adequately supporting veterinary science in all its branches of usefulness to the live stock industry."

*Canning And Canned Foods.

R. Barnes, Ottawa, Ont.,

The invitation to address you on this occasion, with which you have honoured me, was a call so welcome that I made haste to obey it. The summons to celebrate with my confreres such an important event as this, is so alluring as to overcome the doubts I might entertain regarding my ability to bring you any thought worthy of your attention. I have reached the middle-age of man, yet I am not less glad or sanguine at the meeting of you gentlemen today than when a boy, so to speak, I witnessed my class assembled for graduating exercises.

The yearly observance of these association meetings has always seemed to me to be one of the most gracious and most useful of the time-honoured customs of our national life. This one specially brings us together in the full beauty of our mid-summer, with its wealth of fragrance and of bloom, and while persuading us to lay aside the anxious cares and absorbing pursuits, the engrossing ambitions which so easily beset us and fill too large a part of our daily life, they enable us to breathe a purer and serener air, to refresh ourselves with a noble reach of vision and to live through these days in the spirit of the age, and not in the spirit of the ages.

Such an occasion is inspiring alike to the older and younger graduates. It is inspiring to those of us who bring hither a long retrospect of a life of labour, past in fairly good ways, and in work which, if not filled with benediction, have been at least reasonably free from harm to our fellowmen.

It is inspiring also to the recent graduate, who is just crossing the threshhold which divides youth from manhood and has before him a long prospect of days yet to be passed.

And such a meeting as this, held as it is in the seat of the ancient and honoured college, is necessarily fraught with the buoyant and generous hopefulness born of her splendid history. It is indeed impossible to measure the measureless bounty of this seat of learning in that long interval to this continent.

Although I have not been able to take part in all your meetings, I have felt scarcely less interest in them than if I were present, and I even take to myself a share of the self-congratulation which the more ardent members must have felt. The distinction which this association has earned is, however, the least of its honours, it has accomplished a great deal of good in stimulating enquiry, concentrating opinion, and combining efforts towards the welfare of the province in particular and the country in general.

We are bound together by so many ties that, forgetting for the present all things else, I will think of the good we many do and the service we may render to the country in safe-guarding its interests, in order that Canada may become a country we may all feel proud to live in.

The particular subject of which I bespeak is Canned foods.

Now, if outsiders were to read of the deliberations of this meeting and learned that a lecture had been delivered on Canned Food, no doubt some of them would be prone to inquire as to what Veterinarians had in common with food stuffs and some would be heard to remark "why I always thought that a veterinarian's duty was chiefly the promotion of the welfare of live stock and the alleviation of pain and suffering to which they fall heir."

Yes, and that seems to be the thought of the majority of disinterested people, for the reason that they have never stopped to think just what

*An address read before the Ontario Veterinary Association at Toronto, last August, by Dr. R. Barnes, Chief of the Food Division, Health of Animals Branch, Department of Agriculture, Ottawa.

field Veterinary Science covers and the course given by colleges today along the line of fitting graduates for this all important work.

Criticism has been heaped upon members of the profession who have occupied positions of importance, with regard to guarding the unsuspecting public from the dangers which accrue through eating foods of an unwholesome nature. The remarks directed were not actuated by the feeling that a Veterinarian is not performing his task in a most creditable manner, no, no, but more through the fact that they are Veterinarians and through blind ignorance and petty jealousies they keep on criticising, never stopping to consider his qualifications, in fact they do not want to think of them.

Who is better qualified to be a judge of the soundness, wholesomeness and fitness of food for human consumption than a Veterinarian? Who is better versed in the requirements of the laws governing sanitary science, and what are the essential points in the making of a good guardian of a pure food supply? Aren't the studies of Chemistry and Bacteriology of importance? Animal products, as you know, form the bulk of man's food from which diseases may be disseminated if not properly guarded. Isn't it of paramount importance that the Inspector should know the conditions produced by diseases, their detrimental effects on the human economy through eating, and the means employed whereby the health of the people may be safeguarded?

I ask you, who is in a better position to judge what should constitute a sound, wholesome and healthy food product than the present-day Veterinarian?

So much for foods other than canned.

Now let us come to the canned product. The question is often asked, "What does a Veterinarian know about canning?"

In order to answer that question I will have to ask what constitutes canning? Canning is none other than the preservation of food in sealed containers, the principle involved being the administration of heat in due degree, and for sufficient time to cause sterilization, and to maintain it in that condition. Who is in a better position to-day to pass judgement on whether sufficient sterilization has been given to kill all micro organisms? Few are aware that the course of Bacteriology given Veterinarians is second to none, especially fitting them for their duties of enforcing the laws of sanitary science.

There are some who think and feel that the only person qualified to pass judgement on canned goods is a person who has been a paid servant around canning establishments, not in a technical capacity, but purely doing manual labour or in some cases that of a clerical nature.

I will grant that it is a real help for an inspector to be able to say through his association with canning factories, that he knows a sealing machine from an exhauster, but I feel assured that you will agree with me when I say that it is of the utmost importance that a guardian of the public food should be well versed in the study of the Chemistry and Bacteriology without which I cannot see how he can pass judgement intelligently on the fitness of food products for human consumption, especially that in sealed containers, as all food poisonings arise from the changes of a chemical nature or by bacterial invasion, which produce various chemical changes of a poisonous nature.

A Veterinarian of to-day stands alone in this field, his training fitting him especially for this work.

Once he understands the proper methods to employ whereby food may be manufactured for public consumption under sanitary conditions, and is delivered in a wholesome state to the consumer, the hardest part of his work is done.

The work of grading is merely mechanical, requiring only good eyesight and a knowledge of the Regulations governing the standards.

Now, I feel that I have said enough with regard to the qualifications I will now give an outline of canning.

Modern canning methods may be said to date from the year 1810, when Nicholas Appert of France, after years of experimenting, discovered the art of preserving foods through rendering them sterile by means of heat and maintaining them in that condition in hermetically sealed containers.

Appert's process consisted of placing the various articles to be preserved in glass jars, corking them and exposing them to the action of boiling water in open kettles for varying lengths of time, differing with the nature of the article treated. While the discoverer had no conception of the role played by micro organisms in the spoilage of food, his experiments clearly showed that a vacuum alone was not sufficient for the preservation of food stuffs and that the application of heat and the subsequent exclusion of the outside air were essential, also. We now know that the air contains micro organisms which are responsible for the fermentation and putrefaction of foods.

Incidentally, I might add, that the stimulus which prompted Appert's investigation was a prize of twelve thousand francs offered by the French Government for a method of preserving foods for use in the army and navy, and which the inventor received.

The work done since that time has been chiefly in the nature of improved mechanical methods and devices for filling and sealing and in securing greater uniformity and precision in processing.

At first the secret of the process was carefully guarded, but in time the employees of the various establishments became more or less familiar with details. Hence the spreading to other countries.

The secret of canning was first brought to America in the year 1819 and was used in packing lobster, salmon and other seafood. A few years later, however, it was used in the packing of fruits and vegetables, glass jars being used. But owing to their bulkiness, cost and easy breakage, they were gradually abandoned for tin containers. The original process in vogue was to place the goods in open kettles in boiling water, 212° F. being the highest temperature obtainable. Later it was found that by adding sodium or calcium chloride higher temperatures could be obtained, following this retorts where steam under pressure was used, and from which any suitable temperature can be obtained.

Very little progress was made in the canning industry prior to the middle of the nineteenth century, seafood being the principal pack, which in a fresh state and under existing conditions could not be transported inland with safety. At that time also cities were small and fruits and vegetables of all kinds were grown in their immediate vicinity and delivered fresh. Living conditions were not such as to compel the use of food in concentrated form and free from waste. As time went on, however, the superiority of canned food over those which were cured by drying, salting and pickling become common knowledge. The canning industry has been developed upon the principle that the foods go to the consumer in the most attractive and palatable form, are convenient for holding in any place for a reasonable length of time, and lastly, being sterilized, are always safe. In addition, all waste and cost of preparation is eliminated.

The foods packed are no longer limited to delicacies as fruits, etc., to extend them out of season, or to marine products to make them available to the interior of the country, but the method has been extended to the packing of almost every known article of food, the great factor being economy to the consumer in obtaining a wide range of dietary which would otherwise be impossible, thus making the preparations of skilled chefs available in homes where crude cookery would otherwise prevail.

Nothing has done more to lighten the burden of the housewife than the modern canning factory.

By using highly specialized machinery it is possible to save labour, to

handle large quantities of a raw product under sanitary methods, and to prepare food better than it is possible to do in most homes. Life has been made much more livable, by removing much of the former kitchen drudgery Of course we must admit that the taking of this work away from the home and way from observation has developed a lurking suspicion that possibly some of the material used and the care taken in its preparation are not all that they should be, and this suspicion has unfortunately grown to a prejudice against canned foods.

The application of the Science of bacteriology to canning in this country was made by H. L. Russel of the University of Wisconsin in 1895. He was later followed by others. Since that time, however, sufficient work has been done to enable food products of all lines to be processed with comparative safety.

The products of the canning industry are economically and biologically indispensible to the country.

They are economically indispensible because only by the facilities this industry furnishes can the products of one part of the country be made available to other parts. Without the canning industry the consumption of various food products would be limited to the zones within which they could be delivered in the fresh state. The container, plus sterilization with economical production, and the transporation facilities of the present day place the marketing of these products before command of the producer and all the bounties of nature at the command of the consumer.

Biologically, the industry serves the public in an equally indispensable manner. It would be useless to think that we could live without an ample diet of meats, fish, fruits and vegetables at all seasons of the year, or even attempt to bring up the rising generation without sufficient supplies of milk at all seasons of the year.

These foods, without which the men, women and children of the country may not maintain healthy bodies, can only be made available to all, in season and out, through the service which the canning industry renders.

The public must have foods and a great variety. They demand it. Their taste is entitled to it and only through the canning industry can their desires be gratified.

Good commercial canning begins with the production of the material. In meats and meat food products it is essential that they be derived from animals free of disease, and be manufactured under strict sanitary conditions. With fruits and vegetables it begins first, I might say, in the selection of the seed, supervising of the cultivation, harvesting and delivering of the raw material to the factory. It is imperative that the raw material be of first quality, uniform and in the proper state of development to give the best results. One cannot use mixed varieties, harvesting at all stages of maturity, and since these and other products must be furnished by scores of producers, it is necessary for the canner to have a complete understanding and supervision of the work.

This is one of the very important features with which the consumer is not familiar and accounts in a very large measure for what is termed "quality".

Take, for instance, milk. The milk collected for evaporating and condensing is generally of a higher quality and in a fresher state than that delivered in the city market.

(To be continued in the next number of The Record.)

Dr. and Mrs. R. A. McIntosh announce the birth of a son.

Dr. and Mrs. A. Wickware '08, Ottawa, announce the birth of a son.

The Public Preference for Veterinary Services

William Thompson, Keremeos, British Columbia.

The future of the veterinary profession is in the hands of the veterinarians. The remuneration received for their services will depend mainly upon their individual and combined efforts to maintain the high standard of matriculation and training at our veterinary schools, and the education of the public preference for veterinary services.

Veterinary schools are maintained principally by Government grants, which has made it possible to reach the high standard of today, creating a new demand price for veterinary services. To maintain the standard reached, large sums and big prices are being annually paid for the desired raw material, without adequate expenditure to cultivate the public preference for the finished article.

When one considers that there are approximately 17,000 veterinarians on the North American continent, and only about 900 students spread over four and five year courses of training, it would appear as if nothing was being done to attract desirable young men to the profession; whereas annually large sums are being expended to this very end, but with very inadequate results. The reason lies mostly in the public preference. The demand of the past was of a different kind, and the supply was furnished accordingly. The supply of today is associated with a higher class of goods, and on account of the increased cost of production, a higher demand price has been created. If therefore a higher grade of raw material is used, and a more intensive method of producing the finished article, it is an economical law that the demand price is higher. Every veterinarian in the country no matter when he graduated benefits from this demand price, for their status was raised virtually by the raising of the veterinary school standards, started by a few leading lights in the profession. In passing, this fact should be seriously considered by the practitioners and members of the various Provincial Associations, when sending delegates to Dominion conferences. No valid reason can be advanced against Dominion registration for graduates of recognized veterinary schools now, lest it be that Provincial associations are too conservative to see that nothing but great benefit is obtained by a higher and stronger union.

To return to the subject of public preference, it is common knowledge that almost frantic efforts are being made all over the continent by heads of veterinary schools, to obtain raw material of the desired grade, without adequate efforts at educating the public preference for the finished article. From a known economical law, no business, unless fostered by generous patrons could escape disaster by bankruptcy.

The remedy, in my opinion is, as all the Departments of Agriculture are concerned with live stock economy, and the Departments of Health with public hygiene; and as veterinarians of the highly trained article are essential to both, it is obviously up to these departments to see that not only the veterinary schools are properly maintained out of the public treasury, but that sufficient openings be found each year in which to place the finished goods, otherwise the purchase of raw material will not justify their maintainance. In the Civil Service of Canada, there is room for many highly trained veterinarians, to protect the public health from consuming diseased milk and meat. Out of the vast sums spent annually for public education, the Department of Health should insist that a portion be devoted to educating the public preference for inspected milk and meat.

A higher standard of public health would result.

The Department of Health at Ottawa has already done splendid work, and with Dr. John Amyot as Deputy Minister, public health is in good and capable hands. It has, no doubt, appeared to this eminent health specialist, that the education of the public preference for inspected milk and meats, would afford his department á very legitimate demand on the Treasury to appropriate funds to this end. To the medical men, that understand the value and importance of highly trained veterinarians, in the preservation of public health, there comes an opportunity to render a great service to the public by using their influence in sweeping away, by education and legislation the foul blot which stigmatises our national character and hygienic conscience.

Recommendations and suggestions from the Department of Health at Ottawa to the various Provincial and Municipal Boards of Health, throughout the Dominion, to utilize a portion of their annual grant for educational purposes to educate the public preference for inspected meats and milk by qualified veterinary surgeons, would have a far reaching effect in raising the standard of public health. It would also help to solve the problem of encouraging a proper supply of the desired type of student to enter our colleges by virtue of their being able to secure positions with adequate salaries forthcoming when they graduate.

The following extract appears in a current edition of the JAPAN WEEKLY CHRONICLE.

"A Kobe resident found in his letter box the other day a handbill bearing the following cheery message:—

FRESH MILK DELIVERED.
Apply to
HALLELUJAH HOME
c|o Ichinomiya Bokujho, Fukiai, Kobe.

Look at:—

So many cows of good health taken punctual exercise in a large pasture each day. Of course, as its result we can furnish you of best quality.

The price that we charge you only eight (8) sen per bottle of one go. In general, retail price of milk at present seems too high.

YOUR POSTAL ORDER WOULD BE
APPRECIATED WITH OUR BEST ATTENTION.
HALLELUJAH

It is to be feared that the foreign community is so sunk in cynical scepticism that the auspicious war hoop at the end has little advertising value. Besides there are many who prefer getting their milk out of a nice clean tin rather than having it squeezed out of a beastly cow.

PRIZES FOR RESEARCH

The Government of Uruquay are offering prizes intended to stimulate research work for the control of foot and mouth disease, according to "Veterinary Medicine":—

The following prizes are offered:—

(1) A prize of 50,000 gold pesos for a serum which will protect vaccinated animals for 6 months against foot and mouth disease.

(2) Prize of 25,000 gold pesos for discovery and cultivation of the organism.

(3) Prize of 25,000 gold pesos for development of a practical method whereby through vaccination a slight harmless attack of the disease is produced in the majority of treated animals.

Tuberculosis

A. E. Cameron, Lethbridge, Alta.

I think no apology is necessary for choosing such a subject as Tuberculosis, as it is one of the most important diseases in both human and animal life.

A start has been made which will, ultimately, go far to free cattle from Tuberculosis. The Accredited Herd System will, as larger number of herds become free from this disease, show its effects on the whole of the stock industry. An Accredited Herd is more valuable than one not known to be free from Tuberculosis and naturally buyers will more readily purchase where cattle are known to be free from disease.

Our work is to get rid of Tuberculosis in animals, but if we can materially lessen the occurrence of Tuberculosis in man we strengthen our own case for the eradiction of Tuberculosis in animals and will increase our prestige in the world generally.

It is possible the Accredited Herd System will do more for lowering the number of tuberculous patients in the human family than any measure that has been put in hand up to now. We would do well therefore to keep in mind some of the more important facts relating to the connection of Bovine Tubercle Bacilli to man.

There are still odd medical men who express the opinion that Bovine Tubercle Bacilli have no danger for the human being. At the present time, however, it is generally accepted as being a very important factor in Tuberculosis in children. The British Royal Commission give their opinion that in Tuberculosis in young children 37.5% cases are of Bovine origin. Other authorities give higher and lower figures for different series of cases which came under their observation.

Tuberculosis is a large problem and requires the help of all. Even if financial considerations admit of steady progress in the slaughter of tuberculin reactors there is work for many years to come. The testing for Accredited Herds is carried out by the staff of the Health of Animals Branch, in Canada, but the work is of such magnitude that, no doubt, the assistance of efficient practitioners will be obtained. The results of this work in relation to Tuberculosis in man will only be seen in their proper perspective in the future.

The three types, Human, Bovine and Avian Tubercle Bacilli are fairly distinct. Much work has been done on the relations of these to the different species of animals in which they are usually found. There is always the possibility that the different types originate from the same source and have become modified by the different temperatures of the various hosts and the conditions in which they exist.

The distinction is shown in the growth on different media and the virulence when inoculated into experimental animals. Bovine Tubercle bacilli are most virulent, while the Avian stand between the Bovine and Human in point of virulence. When inoculated into rabbits Bovine T. B. produces generalized Tuberculosis. In similar circumstances Human T. B. rarely do, while Avian T. B. will take a longer period to produce death in a rabbit if generalized Tuberculosis results.

Tuberculosis of swine would almost certainly disappear if the disease is eliminated from dairy herds and swine are prevented from getting slaughterhouse offal.

Occasionally we are consulted as to the value of the Tuberculin test and the reliability of the Ophthalmic, Intradermal and Subcutaneous reactions. Many advocate one in preference to the others. The important fact stands out that Tuberculosis, by the use of Tuberculin and sanitary measures, can be stamped out and any of the tests if properly applied can do the

work. If in doubt, all these tests can be applied at the same period of testing. Like any other line of work experience is of importance. Skill in technique and observation of the reactions as far as they are evident are of the greatest importance for success.

Disposal of reactors and their products is a matter of first moment. It should be accepted that milk of Tuberculin reactors is dangerous to calves and children unless sterilized. The meat is open to suspicion, reactors should, therefore, only be slaughtered under qualified supervision and inspection. If kept on account of breeding value isolation should be complete. I would emphasize that isolation and sanitation are quite a study in themselves to be effective.

Important Resolution

ADOPTED BY THE ONTARIO VETERINARY ASSOCIATION.

Moved by Dr. W. J. R. Fowler, seconded by Dr. O. H. Duncombe.

Whereas the Health of Animals Branch of the Dominion Department of Agriculture have intimated to the veterinary profession that they are desirous of obtaining their co-operation more particularly with regard to the accreditation of cattle free from Tuberculosis, and

Whereas the members of the Ontario Veterinary Association have expressed themselves as being desirous of co-operating in all respects with the work of the Health of Animals Branch of the Department of Agriculture,

Therefore be it resolved that the Ontario Veterinary Association by unanimous vote at a general meeting on February 16th, 1922, request that the Health of Animals Branch and Department of Agriculture be advised to this effect, but consider that all veterinarians employed in any capacity, either temporarily or permanently, by the said Health of Animals Branch should be required to maintain membership in a recognized Veterinary Association in Canada, and that only those in good standing should be retained or employed, and that copies of this resolution be sent to the Minister of Agriculture and the Veterinary Director General.

Lieutenant-Colonel A. W. Harris, C.A.V.C., has recently retired from the Canadian Active Non-permanent Militia after completing over forty years service.

Colonel Harris holds the distinction of being one of the oldest and best known veterinarians in Ontario and is a native of Ottawa. His old regiment is the P. L. D. G., which he joined in 1879 as a trooper. The following year he was promoted to the rank of Staff Sergeant. Upon graduating as a Veterinary Surgeon on the 18th April, 1882, he became the first Veterinary Lieutenant of that regiment. Later on he transferred to the 2nd Battery, C.F.A., and on the organization of the C.A.V.C. transferred to that Corps For a number of years Colonel Harris was P.V.O. at Petewawa Camp and during the war was Assistant Director of Veterinary Services.

Colonel Harris still conducts a very large practice in Ottawa and is one of the outstanding active members of the Central Canada Veterinary Association, in which he has always shown a great interest.

Born, Saturday, January 21st, to Dr. and Mrs. W. B. Price, Carstairs, Alta., a son. Hearty congratulations to the Secretary of the Alberta Veterinary Association.

*Need For Veterinary Surgeons---How To Increase Attendance at our Veterinary Colleges To Supply Demand.

Kenneth Chester, New Westminster, B. C.

The subject of decreased attendance at our Veterinary Colleges is I think the most important subject yet brought before this conference, as without future Veterinarians there is no need for Dominion Registration and there will be no practitioners to take over the supervision of accredited herds.

During the last few years the A. V. M. A. and other agencies have been busy increasing the standard of entrance requirements to our Veterinary Colleges and increasing the length of the course to four years, with which I have no complaint, but what have either done to increase the reward to the Veterinarian for his increased efficiency? Today a young man about to enter a professional career finds the entrance requirements to the course of study of medicine, dentistry and veterinary surgery all the same, and it takes as much brains to become a veterinary surgeon as a physician, but what of the rewards of the three after graduation? There is no comparision. We see the physician riding around in his limousine, the veterinarian in a Ford of rather ancient vintage usually, I need not labor the comparison. I think I would be right in saying that the average net income of the Veterinary practitioner of Canada does not exceed $175.00 per month, the salary of a clerk. We see Veterinarians on every hand forsaking their profession after years of study for other lines of activity, such as farming, and even going into politics.

Now from whom are our young men going to get their incentive to take up the Veterinary Profession, except from the practitioner in the home town or nearby. His success and standing in the community will influence the young man a great deal. If he sees he has to do other things besides his practice to make a living, or seems to apologize for being a Veterinarian, can you expect the young man to follow in his footsteps? I put it to the Veterinarians present who have sons, how many of you will encourage your own son to become a Veterinarian? There is nothing small or demeaning in treating the sick and maimed dumb animal and it requires a high order of intelligence and sympathy. Some people seem to think that because of the advent of the tractor the Veterinary Profession has outlived its usefulness, and this is having its effect on prospective students.

Another point, after creating our Veterinary Surgeons, we then proceed to take his liveiihood away from him as much as we can.

Firstly in our Agricultural Colleges we turn out B. Sc's. who in many cases suffer from the old adage "a little knowledge is a dangerous thing" and as a result of a few lectures in veterinary science, later profess to be veterinary surgeons, and act accordingly sometimes to the detriment of the practitioner.

Secondly, in our agricultural journals, our clients the farmers are invited to write about their sick animals, and the treatment is given them gratis, not only to use at that time but in future and for their neighbours cases. How many times in such answers do you see the reply "Go and see your Veterinary Surgeon"? A few years ago similar questions and answers appeared in regard to human health, but now-a-days beyond such a simple reply as a hot or cold application or similar simple advice, the answer ends with go and see your doctor. Also the farmer is advised to

* Address by the Representative of the British Columbia Veterinary Association, before the Canadian National Veterinary Conference at Ottawa.

purchase drugs and is told how to use them. A clipping appeared in a Calgary Farm Journal, dated October 5th, 1921, over half a column long, entitled "The Farm Medicine Chest". It advises the farmer to keep in stock a list of drugs and gives the indications for the use of each. It starts with carbonate of ammonia and ends with arecoline which it says is to be used hypodermically, and a list of instruments that the farmer is advised to purchase and use.

In what farm paper in Canada do we see the value of the local Veterinarian pointed out, and what help does he get from the Government? In British Columbia recently a farmer's bulletin was issued dealing with plant poisoning in the Province, and which advised the farmers to treat the cases with physotigmine given hypodermically. Recently at Vanderhoof, B. C. the farmers there asked the Minister of Agriculture of B. C. to assist them in getting a Veterinarian to locate in their district, by paying him so much per head for testing their cattle under the Provincial Act. He replied that what they wanted really was a district representative (county agent) not a Veterinary Surgeon.

It seems to me that after our young man has graduated, he receives little support, and has to fight the ignorance of some of his clients to his increased efficiency and then there are the Government Departments, College and Farm Journals trying to make veterinary surgeons out of his possible clients, so that they will be in a position not to need his services. Is it any wonder that he gets disgusted and can you expect him to enthuse when a young man talks of becoming a Veterinarian?

Therefore one of the first duties of the Canadian Veterinary Association would be to attempt to improve the conditions of the general practitioner, give him advice and encouragement, and point out to the farmers and stockowners the value of his services. The Government could easily be approached and the situation pointed out to them. The Professors of veterinary science at the Agriculture Colleges could be asked to impress upon their students during the course, that they are not becoming veterinary surgeons. Editors of farm journals and the Press could be approached and advised what effect their present policy is having and try and get them to reverse the procedure, and to boost the Veterinary Profession and acknowledge the value of veterinary service to the community, instead of trying to make "quacks" out of the farmers by free veterinary advice

A particular case where the credit due to the Veterinary Profession of Canada was acknowledged was on the floor of the House of Commons last January by the Hon. Dr. S. F. Tolmie, Minister of Agriculture. After reading his remarks I felt proud of being a Veterinary Surgeon, although he mentioned more particularly the Health of Animals Branch. I got several copies of this Hansard and gave them to the Veterinary Inspectors in B. C., but what a pity that speech was not printed in every farm journal in Canada and in the daily Press.

What the profession needs today is an enthusiastic boost and an energetic propoganda to impress on the public and stockowners the value of modern veterinary science, and point out the calamity that would follow, if the health of the livestock of Canada should become endangered through the lack of the required number of trained veterinarians. Should this be done I think you will find there will be no dearth of young men to take up the noble profession of Veterinary Science.

"King," the famous military charger which accompanied Major General Sir E. W. B. Morrison, K.C.M.G., C.B., D.S.O., with the First Brigade, First Division, overseas in 1914 and returned with him to Ottawa, died last year.

"King" will be remembered by many veterinarians who served in the First and Second Canadian Divisions and Canadian Corps. He was wounded at the first battle of Ypres, but subsequently recovered and accompanied General Morrison through the whole of the campaign.

The Thoroughbred Horse.

Geo. Lane, Calgary, Alta.

Through the kindness of Mr. Wayne Dinsmore, Secretary of the Horse Association of America, we are printing below an article from Mr. George Lane, the well known and famous Rancher and Stockman of Calgary, Alta. This article was a letter written to Mr. Dinsmore by Mr. Lane. It is intensely interesting and coming from such a well known authority as George Lane, it is none the less instructive.—Editor.

I am informed through newspaper reports that efforts are being made to pass State and Federal laws which will interfere with racing in your country. I hope the Horse Association of America will oppose actively, such injurious legislation.

I am, as you know, chiefly interested in raising Percheron horses and beef cattle. I am now far up in years. What I have to say comes from long experience. I served as a scout with the United States cavalry in their campaigns against the Indians in the 70's; subsequently worked as a rider on Montana ranches; and from 1883 until 1921 have been connected with the Bar U Ranch in Canada,—first as a rider,—then as foreman,—later as partner,—and within recent years as sole owner. On this, and other ranches we controlled, we have in some years carried as high as 20,000 cattle and more than 3,000 horses of various breeds and types. Our work has made it necessary to keep from 150 to 200 saddle horses available for use; and constant study of so large a number for almost forty years has convinced me that the Thoroughbred is indispensable in developing good saddle horses, regardless of whether same be needed for civilian or military purposes.

I am a Percheron breeder. I believe draft horses are most generally needed, most useful, and most valuable to the ordinary farmer; but this does not prevent me from recognizing that the Thoroughbred is needed. I have owned and used Thoroughbred stallions at various times during the last thirty years; and since 1912 I have kept Thoroughbred sires constantly on the Bar U Ranch, in order that I might produce the right kind of saddle horses needed, for I found that constant grading up with draft blood, even on broncho mares that had a foundation of hot blood, was making my horses too slow and unwieldy for work under saddle.

I have crossed Thoroughbred sires on broncho mares; on Clydesdale grade mares; on mares sired by Percheron stallions out of broncho dams; on mares that were ¾ or ⅞ Percheron; and whenever I had a purebred Percheron mare that would not settle to a Percheron sire, I bred her to a Thoroughbred sire, and usually got such mares in foal, the result being a crossbred Thoroughbred-Percheron. We have bred the female produce resulting from these various crosses to both Thoroughbred and Percheron sires, so that we have horses carrying various degrees of Thoroughbred blood—from ½ to ⅞ bred from mares of various types and blood strains.

From long experience in the use of such horses, and our actual breeding operations, I know that the Thoroughbred cross on any draft mare increases quality, endurance, and length of life. The half blood and three-quarter blood Thoroughbred colts out of 1000 and 1200 pound mares, have made tough, active, fast going saddle horses; but I will just say a word here in regard to crossing the Thoroughbred horses with the heavy draft horses, any type. This, I find for good saddle horse purposes and especially for cow-horse purposes, a vital mistake, because they grow big and make horses weighing from 1400 to 1500 pounds and lack the action and are very rough to ride and after getting tired are very liable to fall and cripple up the rider. They are a very fine looking horse and do a lot of good

serviceable slow work, but cannot keep up the fast riding for any length of time.

In England when I was there, I met a good many people who were anxious to cross the Thoroughbred and heavy draft horses. Some of the military men, especially the leading military men, were just bound to cross the Thoroughbred with the heavy draft horse, and were sure that this was the way to raise the best cavalry horse, but I stood right out and said "No" as I had tried this a good many times and found the change too quick, and they lacked the action and the good quality; but I am well satisfied that some of the breeders are trying this in England now. My experience is, keep the heavy draft horse to himself. For our cow horses, give us ¾ Thoroughbred and ¼ Percheron, and you will find that you will get the most intelligent and most suitable horse for cow work that you can get and an extremely good roadster; and as a rule they do not get too heavy, and give a lot of good service.

I personally feel that it would be a vital mistake to do away with the Thoroughbred horse for the generation of people coming on, for I know personally the good that the Thoroughbred has left behind him and at present I am fixing up to breed a few more. I have great pleasure in going to my ranch and looking at the Thoroughbred horses that I shipped from Old Mexico to the Bar U about twelve years ago, and whenever I see any of my men riding a pretty good saddle horse, I say, "There, that's another one of the Spooner's from the horse I brought from Old Mexico," and they have proven their worth with me many times over, both in work and in pleasure. This horse I shipped from Old Mexico is one of the Peep-O'-Day horses, broken down by long racing. I bought him and shipped him to this country.

Because I have been convinced, by actual experience, of the great value of the Thoroughbred blood, I have, within the last three years, imported a few mares in order that I may produce on the Bar U Ranch enough Thoroughbred sires for my own use.

This information may be of some value to you in combatting the efforts of so-called reformers to kill racing—which has made the Thoroughbred.

FOOT AND MOUTH DISEASE IN GREAT BRITAIN

The present outbreaks of Foot and Mouth Disease in England and Scotland are of a very extensive nature. In England it is the worst that has appeared for over thirty years. The territory involved under restrictive measures is very large and includes not only all the northern counties of England but the greater part of Scotland. Additional outbreaks have been reported from points in the Midlands down as far as Bedfordshire.

This is the first time in many years that the disease has appeared in Scotland, and the Health of Animals Branch, Department of Agriculture at Ottawa, have been obliged to cancel all permits for the importation of cattle, sheep, other ruminants and swine from the British Isles, thus withdrawing the privilege which up to now had been extended to Scotland.

DEMONSTRATIONS ON TUBERCULIN TESTING.

During the week of February 7th, demonstrations of tuberculin testing of cattle were held at Winnipeg in connection with the Annual Meeting the Manitoba Veterinary Association. The following week a similar demonstration was held at Toronto during the Ontario Veterinary Association Mid-Winter Meeting.

It is expected that further demonstrations will be offered as opportunity arises in other parts of Canada.

Sterility In Cows.

(Continued.)

J. N. Pringle, Toronto, Ontario.

VULVA AND VAGINA. A stricture at the juncture of the vulva and vagina (hymen) whether or not a portion of the hymen in the form of a fibrous band be present, causes the normal vaginal and uterine secretions to be retained, or prevents their normal discharge taking place, they therefore become stale or in some cases infected, when they cause a vaginal catarrh. In either case they act as a hindrance to conception.

Treatment. Cleanse the vagina thoroughly with normal saline solution, and dilate the structure. One dilation may not be sufficient. Keep the vagina thoroughly clean until the secretions are normal, after which the animal will conceive.

The mucus membrane of the vulva and vagina normally should be soft, moist, pliable and slightly velvety. There should be plenty of room for the free movement of the hand, in fact a vagina when ballooned has capacity enough to contain several hands.

Deformities, congenital in heifers, traumatic in cows, are met with e.g. in cases where the vulva and vaginal tube for its whole length is much constricted, requiring considerable and careful dilation before the hand can be introduced to palpate the cervix. In one case a Shorthorn heifer, this being the only discoverable cause for her being sterile eight months, conceived on second service after two dilatations. Have met with several such cases that required more treatment and vaginal douchings.

In other cases local strictures are met with, not meaning hymen or the situation of the Mullers Ducts, but at the the other parts of the vagina. So far I have only encountered six of such cases. Again one meets with cases of complete occlusion of the vaginal tube "white heifers". One case, a variation of this is possibly worth mentioning here, and may do more good than much explanation. A heifer about twenty months old had been served twice by a yearling bull without result. Next time oestrum appeared she was served by a two-year-old bull. Shortly after service she began to strain or press, the straining growing gradually worse. The owner became alarmed and sent for a veterinarian who gave her a hypodermic, I suppose morphine. He also applied hot blankets, locally, which treatment gradually overcame the symptoms, though she continued to strain slightly at intervals during the next eight days. I was consulted on the evening of the day the heifer was served, and agreed with the treatment and gave the opinion that it possibly was a case of imperforate hymen, or a deformed vagina. The heifer was rather old to have an imperforate hymen and would have started pressing after service with the smaller bull. I thought it was a constricted vagina and that the bull's penis had penetrated the vaginal mucus membrane, and passed along through the pelvic connective tissue, alongside the vagina. This proved to be the real anatomical condition present. I had an opportunity to examine the heifer a few days later when I found by rectal exploration that there was an elongated, painful swelling, extending from the brim of the pelvis backward to the meatus urinarius. At the left side of the vagina I found the whole vulva very small, having great difficulty in getting my hand into it. The vagina appeared to be completely closed with a little pit at the centre. I bored one finger into this depression and succeeded in dilating it to the extent of two and a half to three inches, when it was arrested by what appeared to be a complete septum or membrane, stretched across the vagina with a hard, rough spot in its centre. This, we thought, might possibly be the cervix. On account of the increased straining, I had to cease further

exploration. On examining the inside of the vulva with a speculum and flashlight, we noticed the wound in the vulva mucus membrane on the left side and as far forward as we could see. Just at the left of this stricture, this we supposed was where the bull's penis penetrated the vulva wall, and confirming the diagnosis, I dilated this wound and advised frequent hot vaginal douches, in the hope that if abscess formed further forward it would discharge into the vulva, and fortunately this is what it did, as a considerable quantity of foetid pus was discharged daily for over a week, commencing a day or two after my first visit. This was very fortunate; had the pus collected in one place and burst in the peritoneal cavity the result would have been death in twenty-four hours or at least within one or two days.

About three weeks later I had an opportunity of making another examination. The swelling in the pelvic cavity was greatly reduced in size and was not painful. The wound in the vulva mucus membrane had nearly healed, but the lumen of the vaginal tube had entirely disappeared. I could not even find the place where the pit or depression was, into which I had forced my finger on my first examination. The ovaries, uterus, and vagina could be easily located per rectum and appeared to be normal, except at the posterior part where the vagina was small and hard. I cautioned the owner to keep a watch on her for signs of straining, and examine for enlargement of the uterus, as I thought it possible, should the passage be occluded completely and the secretions be imprisoned, they would fill up the uterus as in "white heifer disease," and would cause trouble and straining in the course of time.

I will now consider the part that infection of the ducts of Gaertner's and Bartholini's glands play, in causing persistent vaginal catarrh. These glands are situated, one in the cervical tissue, and the other in the wall of the uterus. These ducts pass backward in the vaginal mucus membrane and open on either side of the meatus urinaris, and a little anterior to it. A full description will be found in W. W. Williams' text book on, "Diseases of the Genital Organs of Breeding Animals."

The Ducts, if healthy, can not be felt or detected on palpation of the vagina. Even if they are slightly affected and discharging a limited quantity of catarrhal products into the vagina, perhaps a little pus, they may not even be detected, yet their discharge may be sufficient to cause a persistent vaginal catarrh for which it is very difficult to find a cause, because no thickening or swelling of the mucus membrane has taken place, at least enough swelling to be detectable on palpation. In time, however, this swelling takes place. Their openings will be felt as small nodules on the floor of the vagina and the ducts themselves will appear as small cords running along the floor or sides of the vagina, but their detection requires careful palpation. Later however, should the inflammation continue, the lumen of the tubes will close. This will be followed by the formation of abscesses at intervals. These abscesses can be felt as small or elongated nodules along the course of a duct. There may be as many as eight, when two or more ducts are affected.

Should small hard nodules be encountered when making an examination of the vagina, palpate or press them carefully to discover any signs of fluctation, and if found they should be incised and the vagina douched frequently, sometimes as often as twice daily, as the pus they discharge will surely keep up vaginal irritation. Use a very week solution of disinfectant say one half of one per cent. solution of Lysol or one quarter of one per cent. solution of Lugols, etc., and at the same time give a **Metritis Bacterin.**

A persistent vaginal catarrh may sometimes be caused by infection of the ducts of the smaller glands or by the presence of certain bacteria in the deeper layers of the mucosa. The toxins given off by the bacteria irritate the vaginal mucus membranes, keeping up the catarrh. The treatment

is the same as before, e.g., douches and a Bacterin. I have encountered several cases (probably six) which absolutely refused to respond to local treatment. On these I tried everything I knew of or read about without affecting a cure, or even benefitting them much. These cases all cleared up in less than one month so far as macroscopial examination could determine, after commencing the administration of the Metritis Bacterin. On two of them I had tried Polyvalent Bacterins, Phylacogens, Tonics of Iron and Copper, etc., also several aphrodiasiac mixtures without effect or result. One cow that had been sterile a year had cystic ovaries during the first two months of treatment. For two months before commencing the Metritis Bacterin, the discharge which was copious from the vulva was white and sterile as proven by microscopical examination and incubation.

Anyone who attempts to treat such cases requires to have lots of patience and perseverance. Veterinarians and owners who do not realize this, had much better never begin to treat these cases at all, as perfunctory or occasional treatment is valueless in probably 98 per cent. In other cases of vaginal catarrh, I have found the vaginal mucosae thickened, indurated, and corrugated with considerable diminution in the lumen of the whole vaginal tube, the lines of the corrugation running lengthwise with the vagina. These cases require a somewhat prolonged treatment, e.g., daily irrigations with saline and sodium bicarbonate solutions. After thoroughly cleansing with that solution an occasional disinfectant should be used as a second douche, such as a five per cent. soluton of Lysol, 25 per cent. of Lugol's, one-half to one per cent. solution of potassium permanganate, one per cent. plumbi acetatas or a one per cent. solution of zinc sulphate. Do not use any of these latter remedies every day but two or three times per week. One, however, meets an occasional case that simply refuses to respond to that treatment and results will be obtained by injecting two ounces of the Iodiform-Bismuth and Mineral Oil mixture about every third day. After a thorough cleansing with saline solution the majority of such cases respond to two or three treatments. Since I began to use the Metritis Bacterin I have had much less trouble with such cases, in fact I have had several under treatment that I had given up hope of curing, and which responded in two or three weeks to the administration of the Bacterin. One or two of these cases may of course remain permanently sterile, as the ovaducts may have become infected, and should this be so, no treatment is of any avail. Theoretically a Bacterin may prove efficacious, but that is doubtful, and has to be proved, a task which is not easy. It requires time because the results of a number of cases so treated have to be recorded before a conclusion can be reached.

CERVICITIS. One meets cases of cervicitis in all degrees of severity from a slight reddening of the whole cervical mucosae, or a patchy inflamation of mucus membrane, or as much as the half of it, viz, one side, or lower half, or the whole organ may be inflamed to the extent that its color is nearly black, much swollen and enlarged, also firm, even hard. One case I met which was about three and one half inches long and about two inches thick with several flaps of the inflamed first annual fold of mucus membrane protruding or hanging out of the external Os, the flaps resembling the lower lobe of the human ear.

I cannot depend on palpation per rectum for the diagnosis of slight cases of cervicitus. I can only be sure of myself after making a visual examination, viz., by pulling the cervix back into the vulva after making a thorough examination of it, dilating the vulva in order to see it properly either having the cow opposite a window or door or using a strong flashlight. Daylight is best as artificial light gives the membrane a darker appearance than daylight and may deceive.

Method of Drawing Cervix Back Into the Vulva for Examination.

Use the Cervical forceps, by introducing one jaw into the cervical canal,

and grasping it firmly. If the cervix is closed, grasp it at the side, but do not grasp the vaginal mucus membrane as one is often tempted to do. This is very difficult indeed.

The normal cervix varies greatly in size especially in heifers, it is sometimes found just a little nodule of the mucus membrane. It usually grows larger as the cow grows older, so that the size cannot be taken as a guide to the presence or absence of inflamation.

Treatment. For simple accute inflammation douche the vagina and cervix thoroughly with warm water and saline and then swab it with Tincture Iodine. At times it may require a little dilating to accomplish this, though it is usually sufficiently open to allow it. This treatment should be repeated every seventh day until recovery is made, with a few thorough douches "between treatments" of the vagina with warm saline solution.

In more severe cases or in persistent cases it ought to be swabbed with a ten percent. solution of Silver Nitrate and immediately after with Tincture of Iodine. I treated the aforementioned case in this way and once with Formalin and Tincture Iodine equal parts. In spite of all I had to perform a modified circular cervical amputation before I could get recovery.

(To be continued in the next number of The Record.)

ROUGH ON RATS

A National rat week was held in England last November. The weapons used against the rat (according to the English Veterinary Journal) were several. First in importance and suitability for use by householders are the poisons of Barium Carbonate and Red Squill, (Scilla Maritania) which may be obtained from most Chemists, and used in accordance with the following instructions. Mix equal weights of the following ingredients into a thick paste:—Barium Carbonate, Oatmeal or Bread Crumbs, minced Kipper and Fat, or mix into a paste, one part of Barium Carbonate, two of Oatmeal, one of fat and a few drops of Aniseed oil. A teaspoonful of either paste is a sufficient poison for a full size rat. The paste should be wrapped into twists of paper and placed into rat holes and runs.

Red Squill can apparently be purchased from any Druggist in the form of either liquid or extract or in powder. The liquid extract can be used measure for measure mixed with milk, or thin soup stock and placed in saucers or shallow pans near their runs or holes where domestic animals cannot get at it.

Red Squill powder can be also prepared in the following way,— two parts by weight of red squills, five parts by weight of cheese, five parts of fat and six of oatmeal or flour. The whole mixed in a thick paste and baked lightly in an oven.

The final product of these mixtures should be touched as little with the hands as possible.

Dr. George Hilton, Ottawa, is making a tour of the Western provinces.

Drs. Seymour Hadwen and Ransome, of the Bureau of Animal Industry, Washington, U.S.A., called on The Record the beginning of the New Year.

The Past President of the B. C. Veterinary Association, Dr. T. H. Jagger, has been appointed Lecturer of Veterinary Science at the University of British Columbia.

The champion cockerel of France has been purchased by an English farmer living near Birmingham. The fact that it still crows in French is causing some difficulty in making itself understood by the local poultry.——Punch.

THIRD ANNUAL DINNER

The Federal Meat Inspectors of the Canadian Packing Company, held their third annual dinner on December 12th, 1921. The dinner was served in the new dining room of the Company and embraced a wide range of delicacies which would have appealed to the epicure.

Among those who attended were Messrs. T. F. Matthews, President of the Canadians Packers Ltd., H. W. Phelps, Assistant Manager, J. A. McLean, General Sales Manager; Andrew Park, Secretary; W. J. Neely, Cattle Buyer; W. Pardine, Superintendent; T. Bannon, Chief Engineer; M. White, Office Manager; Drs. R. Barnes, Ottawa; G. Cavin, Ottawa; F. H. S. Lowrey, Ottawa; L. A. Willson, Montreal; D. A. Irvine, C. W. McIntosh, Toronto; Inspectors, D. R. Bone, C. Brind, J. C. Davidson, L. L. Wingates, W. Tennant, G. A. Rose, W. J. Teddan, W. J. Blainey, E. E. White, T. McFarlane, W. J. Drennon, G. C. Brownridge, R. McGuffin, A. Smith, D. Edwards, and Lieut.-Col. T. C. Evans.

Dr. D. R. Bone, Inspector in charge of the Plant, received the guests and occupied the chair at the table. In the course of his remarks, Dr. Bone spoke of the numerous improvements which the Company had introduced during the past twelve months, which was very gratifying to the Inspection Staff. In a more humorous strain, the Chairman referred to the results and effects of the recent Dominion elections upon the literary appetites of different members of the Management. In recent days, he said, "the office was flodded with the Mail and Empire, now-a-days, everyone comes walking in with a "Globe" wearing a smile."

The members of the Company present spoke in eulogistic terms of their Inspectors Staff. Mr. Matthews emphasized the good results which had been enjoyed through the existing harmonious co-operation between the Inspectors and the Management of the Firm. Dr. Barnes, of Ottawa, Dr. Willson, of Montreal and Dr. Irvine of Toronto replied for the Inspectors. Lieut-Col. Evans spoke of the value of an adequate system of food inspection to the general public. He thought it was a great pity that the people were not given a greater opportunity of appreciating the value of the "Canada Approved" mark on edible products. Dr. G. Cavin, of Ottawa, told of the ignorance people exhibit toward the blue stamp on passed foods. This speaker stated that if the average housewife knew of the protection she was getting by purchasing meat with the "approved" stamp upon it, the butcher who sold uninspected meat would be out of business in a week. Dr. Cavin entertained the company with a series of lively habitant stories, excellently recited. The evening closed with singing of Scotch songs and God Save The King.

The death of the nine months old daughter of A. R. Campbell '23, occurred at 216 Gerrard St., Toronto, on January 10th. Dr. Goodchild was in close attendance and everything was done. For a time her wonderful physique appeared to be conquering but the severe strain was too much and at 2.30 o'clock Tuesday morning after a ten day's illness she passed away. The funeral took place from Miles Chapel, College St., to Prospect Cemetery. Dr. Hunter officiated.

CLINICAL and CASE REPORTS

Any case report which you consider would be of interest to other members of the profession, please send it addressed to the Editor, 1127 Keele Street, Toronto, Ontario, for publication under the above heading. Practitioners are invited to avail themselves of these columns. We require more case reports in the Record.

FORAGE POISONING

On December 25th, I received a call to a farm to attend two sick cows. On my arrival the following clinical observations were recorded.

Cow No. 1. Temperature 102 F. Pulse 75 and very weak. The mucous membranes all presented a very pale color, almost white. Rumen impacted.

Cow No. 2. Temperature 102°F. Pulse 55 and regular. Mucous membranes not so pale. Rumen slightly impacted.

During the time I was making the examination of these animals, the owner informed me that on the Saturday before he had six head of cattle dehorned, and all of them died within three and a half hours following the operation.

At another part of the stable were two yearlings, in a very weak condition. All the animals that I saw on this farm were well nourished and appeared to have been receiving good care.

At this point I considered it expedient, with the information obtained, to make further inquiries into the conditions under which these animals were fed and watered. Drinking water was supplied from a good spring well 25 feet deep. My attention was then directed towards the feed these animals had been receiving. This I found consisted of sweet clover ensilage, straw and pulped turnips. The clover ensilage which I examined appeared to be a little mouldy.

Cow No. 1 and the two yearlings died the same evening, two days later 3 more yearlings died.

Nothing of a very pronounced character was seen at post-mortem, except that the heart and posterior aorta contained very little blood and the lungs were also pale and devoid of blood.

My conclusions are, that the six animals which died following dehorning, that death was probably caused by the mouldy silage predisposed by loss of blood as a result of the operation.

I should like to hear if any other practitioner has met with a similar condition?

J. Dunn, V. S., Barrie Ontario.

CAESARIAN SECTION

My patient was a cat brought from England when a very small kitten. When about one year old she went out one night and subsequent developments proved her to be pregnant. Her mistress telephoned one morning saying her pet was ill. On arrival I found the cat straining and in distress. We took her to hospital and on examination found a complete obstruction of the vaginal passage that made normal delivery impossible.

After working about an hour, decided that Caesarian section was the only hope of saving the animals life. After explaining the seriousness of the case to the owner, and being advised to use my own judgment, decided to operate, this being my first operation on a cat, although I have done several on dogs. Having sterilized instruments, hands, etc., she was given

a few whiffs of chloroform, followed up with ether till completely anaesthetized. She was fastened on the operating table secured by hobbles. The abdomen was shaved and disinfected and an incision made from the umbilicus back towards the pubis through the peritoneum exposing the uterus.

The pregnant uterus was drawn out as far as possible with an assistant to hold the abdominal wall as close together as possible to prevent the amniotic fluid from the uterus getting into the abdominal cavity.

An incision was made through the uterus wall exposing a kitten with a head about two thirds the size of a base ball, also three normal kittens. These we chloroformed at the request of the owner. The fetal membranes were removed and the uterus swabbed out as well as I could with 'Dakin's Solution'. The uterus was sutured with cat gut, using Lemberts Suture. The abdominal muscles were sutured with silk. The skin being sutured separately. A piece of gauze soaked in Dakins Solution was applied to the wound externally and bandaging around the body.

For three days after the operation she seemed to suffer considerable pain but the fourth day was much brighter. The wound was dressed twice daily with Dakin's Solution. I expected considerable pus but there was very little. In four weeks I sent her home fully recovered..

Six week later they brought her back and I performed Ovariotomy.

The accompanying photograph illustrates her appearance today.

E. H. Cook, V. S., St. Stephens, N. B.

Opportunity for Practice.

We are informed through Mr. C. B. Hacking, Phm. B., of Hanover, that the community are in need of a veterinary practitioner. All communications asking for information in connection with the above should be addressed to Mr. C. B. Hacking, Druggist, Hanover, Ontario.

OVARIOTOMY OF A TROUBLESOME MARE

Ovariotomy, commonly known as "spaying" operation is performed upon all the domesticated animals, more particularly sows, bitches and cats. In the small animal either the flank or median line, (linea alba) is the place to make the incision for removal of the ovaries. In larger animals through the research work of Charlier and Colin, we find that the vagina is admirably suitable.

The subject was a light draught mare. History:—Almost constant oestrum during which she behaved in an indecent manner, kicking, biting and squealing at her companions and quite dangerous to attendants. At other times she was listless and stubborn.

From the history I considered that there was some diseased condition of the ovaries and advised examination. This was done per rectum and the ovaries were both found to be enlarged. Owner consented to operation.

Operation: The mare was starved out for 24 hours, she was so mean that no further preparation could be attempted. On the day of the operation she was secured on the operating table. Feces from the posterior bowels was removed per rectum by enemas. The vagina was then irrigated and swabbed with solution of soda bicarb.

A general anaesthetic was administered, chloroform by the mask method. The mare was placed on the left side and incision was made through the vagina a little above and to the left of the os, using a small guarded knife. A very small opening was made, large enough to permit the introduction of my fingers gradually enlarging it until I could introduce my hand. I then located the left ovary and with the spaying ecraseur directed along my arm was able to pass the chain over the ovary. The assistant then operated the ecraseur as directed. The left ovary gone, the same technique was used in removing the right one. The mare was allowed to recover from the anaesthetic and taken off the table. She was taken home the following day, nine miles distant and made an uneventful recovery. Her owner stated that her vicious habits entirely ceased and he worked her every day.

J. Dunn, V. S., Barrie Ontario.

PERSISTENT "FORAMEN OVALE" IN A CALF.

A Shorthorn calf weighing 85 lb. and normally formed to all outward appearances was born here early in November. It would neither rise by itself nor stand when lifted, and was indifferent to a nursing bottle.

Clinical Notes:—Temperature normal. Respiration 60-70, labored, and occasionally interrupted by a little moist cough; bronchial rales very faint;resp. murmur normal; no dullness on percussion over pulmonary area. Pulse rather weak, heart pounding at 116-120 per min.: visible mucous membranes distinctly blue; hind feet and legs cold, fore limbs warm. Died at 96 hours.

Post Mortem:—Abdominal viscerae normal. Both lungs congested and of a perfectly even red color on all surfaces and on section. The tip of the cardiac lobe, rt. lung, sank in water; all other portions floated buoyantly. Myocardium, soft and easily torn. A persistent foramen ovale was present between the auricles and was large enough to admit a man's finger with ease.

Discussion:—The recent history of the stable, animal's temperature and buoyancy and even coloration of lungs preclude pneumonia. The very large and persistent foramen ovale, however, accounts for the symptoms, and death was doubtless due to heart exhaustion.

It is of interest to add that the two previous calves dropped by the same

cow died showing similar symptoms and I am informed by a layman that their lungs were pneumonic (?)

Does anyone know of another cow given to making calves of this sort?

Manitoba Agricultural College, Winnipeg.
Alfred Savage, M.D.V., B.A. Sc.,

DEATH FOLLOWING DEHORNING

Just recently I have had a peculiar case or occurrence and as it has to do with sweet clover ensilage which is becoming a popular fodder for animals throughout different parts of the country, it might be of interest to the Veterinary profession as well as stock owners if I give the particulars.

On December 22nd, I was called to dehorn five yearlings which were in real good physical condition. These animals had been fed on sweet clover ensilage, straw and some hay, but no grain, living along with several other animals without horns. At 2.30 in the afternoon I arrived at the farm and removed the horns from the five without difficulty, and finished by 3 p.m. As soon as the operation was completed they were turned loose in the yard outside the stable. Of the five there were only two horns spurting blood when I left for home. As the weather was mild my instructions were to leave them outside until the bleeding stopped.

The animals were stabled in a large box stall at 5.30 p.m. and they had all stopped bleeding except for perhaps a few drops. Upon examination by owner after his meal at 6.45 p.m. he found one lying dead and another unable to rise. The remaining three walked outside again apparently as well as ever.

After having learned what had taken place I returned to the farm and to the one unable to rise I administered stimulants of alcohol, sulphuric ether and Ext Nux Vom, blanketed it and propped it up on sternum. Having finished with this one for the time being, we examined the three outside and found the largest one unable to get up, so we drew him in on a stone boat. The remaining two walked in but immediately lay down and in twenty minutes were dead. They were all dead at 9.30 p.m. The four got stimulants and the last one did not.

The symptoms were all alike with the exception of one which seemed to show cerebral symptoms. This one would raise its head and go over backwards or shove against a corner. After a spell he would lie quietly for minute or so and then follow with another spell. This one took about six of these spasms before dying. The other four seemed distressed and weak and not able to rest upon their sterum. The pulse in those I was able to take was around 140 and quite weak. I did not hold a P. M. but upon severing the carotid, and jugular veins some dark blood came away (about a pint or two) after the heart had stopped beating.

I would like to hear from other practitioners or any through the colums of the Record who can account for the changes which took place to cause death, or any who have had similar experiences?

My own solution is ensilage. Sweet clover silage is very acid in reaction and the absorption of this acid solution from alimentary canal to replace the lost blood has changed the blood which is normally alkaline into an acid reaction. This I believe is almost sure death. The animal exhibiting spinal or cerebral symptoms might be accounted for by either loss of blood from that organ or the action of acids in blood acting on protoplasm of corpuscles causing a thrombus in vessels of cerebum. Could any other treatment have been used with success? Should I on arrival injected an alkaline solution intravenously, if so, would there have a chance of saving some?

I think anyone about to dehorn or perform any operation which entails

the loss of considerable blood on cattle being fed sweet clover silage be well advised to have their diet changed for a couple of days preceding, or administering large doses of soda bicarbonate or some such alkaline solution.

Hoping this might be of sufficient interest to appear in your Journal.

F. R. Page, B.V. Sc., St. Marys, Ontario.

SHOEING OF HORSES

Lieut.-Colonel T. J. de M. Taschereau, Ottawa, Ontario.

I am very much interested in the two articles by "Veterinary Surgeon" and "Kenneth Chester," which appeared in the December number of the Record on the subject of "frog pressure."

The following observations represent fourteen years experience with Cavalry and Artillery horses and may be of interest to the readers of this journal.

Briefly speaking, the shoeing of horses is essential because the hoof is not hard enough to stand the unnatural wear placed upon it by use over hard roads. The wearing surface of the foot must be protected and the iron shoe has been found to be the best for this purpose, up to the present day. In fitting the shoe our main object to observe is to change or alter as little as possible the natural plane of the foot and to do as little damage as can be helped to the structure.

A point to remember is that during progression, when the leg is extended for the step forward, the toe is slightly turned up and the frog comes to the ground first. The whole of the frog being thus in contact with the ground helps to sustain the animal's weight, but its main functions are to prevent injury from concussion produced by the hoof coming in contact with the hard ground; it is perfectly adapted to obviate slipping, by acting like a pneumatic tyre to the body, excepting that it does not wear out. In actual shoeing it is not always practicable to get the frog on the ground, especially when the web of the shoe is thick, or the heels raised with calks, but the sooner frog pressure can be brought about the better. You will notice that in the unshod foot, the frog is always below the level of the sole, with every step this frog-pad expands between the bars, and prevents the heel from contracting. With frog pressure permitted you will never have contracted feet.

The paring of the frog should be prohibited. It is much better to commit a serious error of paring down the heel too much, and to even allow the shoe to rest on the bars, than not permit the frog to come in contact with the ground. In any case, the pressure on the bars will be very little and almost nil, especially if the frog is well below the quarters.

Dr. R. A. McLoughry, of Winnipeg, has accepted a position as Record Performance Inspector with the Dairy Division, Live Stock Branch, Department of Agriculture, Ottawa.

Shar:—Think I'll stay in bed to-morrow and send for the doctor.
Jones—Sick?
Shar:—No, thirsty!

Dr. E. A. Watson, Chief Animal Pathologist, Department of Agriculture, returned to Ottawa from Europe on December 5th, 1921.

While in Norway Dr. Watson purchased and imported a number of reindeer to Baffin's Island; also five or six families of Laplanders were engaged to accompany them to Canada.

ASSOCIATION NEWS

Secretaries of all Veterinary Associations are invited to forward Reports and Announcements of their Association Meetings to the Editor for publication in these columns.

BRITISH COLUMBIA VETERINARY ASSOCIATION
President's Annual Report

At the beginning of the year in which I had the honour of being elected as your President, we held a most successful banquet in New Westminster. The Hon. Dr. S. F. Tolmie being in the Chair. The toast list contained many prominent speakers including Mr. G. Hutton, chief of the Natural Resources Dept. of the C.P.R.; Hon. Mrs. Ralph Smith, M.P.P.; Mr. C. A. Welsh, President New Westminster Exhibition, Mrs. Paul Smith, President of the Local Council of Women, who made a speech that was most favourable to the Veterinary Profession. Members of Parliament, prominent stockowners and exhibitors were also present together with the members of the Association, making a total of over 60 people.

Favourable comment was heard on all sides afterwards, and in the press regarding the successfull manner in which the banquet was carried out and feel it will do the profession a great deal of good.

In regard to amendments to the B.C. Animal Contagious Diseases Act, in regard to the sale and use of tuberculin which permits the use of tuberculin by laymen, the Association sent a delegate to the Dairyman's Convention in Victoria who brought the matter up. The Dairyman's Association honoured this Association by placing its delegate on the resolution committee on the subject of tuberculosis.

We have been unable to get these amendments altered, the Deputy-Minister of Agriculture, Dr. Warnock, being opposed and he stated at the convention that the use of tuberculin by laymen in outlying districts should be permitted, and a suggestion of a license in these rare cases, he would not accept. The matter, however, is still before the Association.

The question of the sale of tubercular meat without inspection, still occupies the time of the council.

I have pleasure in announcing that partly owing to the efforts of this Association, that the Government has appointed a qualified Veterinarian as Director of Veterinary Services for Canada.

On July 14th and 15th a very successful international convention was held in Seattle, Washington. Some sixty Veterinarians from the States of Washington, Oregon, Idaho and the Province of British Columbia were present and two days were fully taken up with professional business.

I feel proud of the large delegation that went from this Association, and I took the opportunity on our behalf to invite the convention to meet with us next year in Vancouver, which was unanimously accepted.

An important resolution was introduced by us which was carried, asking the Veterinary Colleges to give a post-graduate course to qualify Veterinarians to act at Veterinary Health Officers.

A contribution of $25.00 was made to the Andrew Smith Memorial Fund, in lieu of a personal canvass of the members.

The question of the formation of a Canadian Veterinary Association has been before our profession a number of years. I think the time is fast approaching when such an Association should be in operation and I would recommend to the incoming Council that a Committee be appointed to inter-

view the Hon. Dr. S. F. Tolmie on this subject on his coming visit to the Coast.

In conclusion I would like to say to the members at large, that the various activities of the Association have for their object the betterment of the practitioner, by bringing the value of Veterinary Science more before the general public and by pointing out to them the valuable services that the Veterinary Profession can render in any community.

T. H. JAGGER, B. V. Sc., President.

DOMINION REGISTRATION

The Council of the British Columbia Veterinary Association has taken objection to the proviso clause of Section 29, of the act for the establishment of a Veterinary Council in Canada, and think that it should be eliminated altogether. This clause gives the Provincial Examining Boards the nower of setting an examination to an older graduate who has received Dominion Registration without examination.

The B. C. Association states, "that the objections are many, firstly, it is thought that no older graduate will take Dominion Registration with that clause in front of him. Secondly, the conception of that benefit of Dominion Registration would be the abolition of Provincial Examination Boards. Thirdly, the proviso is optional with the Provincial Examination Board and imagine the position such a board would be in, in allowing one man with Dominion Registration to practise without an examination and the following week require the next man to take one. The second applicant might demand reasons in a Court why he was required to write an examination when the first applicant was not. The position of the Provincial Examination Board would be far worse than it is now."

We publish hereunder the amendment as suggested by the British Columbia Association.

Proposed Subsection of Section 29.

"Any graduate of a Veterinary College recognized by the Council, who has received a license or certificate of Registration in any Province previous to the date when the Council has been first duly constituted under this Act, and who is engaged in active practice of Veterinary Science at the time of the passing of this Act, shall be entitled to be registered under this Act as a Veterinary practitioner, without examination, upon payment of the fees and upon compliance with the other conditions and regulations for such cases as prescribed by the Council."

Explanation:—The words "graduate of a Veterinary College recognized by the Council" should be sufficient to exclude so-called graduates of correspondence schools or graduates of certain non recognized colleges in the United States, where the course was found to be unsatisfactory.

Kenneth Chester, Secretary-Treasuer.

PRINCE EDWARD ISLAND VETERINARY MEDICAL ASSOCIATION.

A meeting of the Prince Edward Island V. M. A., held in Charlottetown, P.E.I., on December 14th, 1921.

The president, Dr. J. A. Allen, was in the chair. Vice-President Dr. I. E. Croken and other officers were in their appointed places. The minutes of the last meeting were read by the secretary Dr. W. G. Church and after being fully discussed were finally adopted.

After all business matters of the association were dealt with, Dr. J. A. Allen read a paper on dominion registration and co-operation of Provincial Veterinary Associations which he prepared at the meeting of Veterinary Surgeons held in Ottawa on November 21st, which was thoroughly discussed by the members present. Dr. Pethick read a paper on the accredited herd

plan now being put into force in the Provinces of Canada by the Dominion Government, how it was carried on and the benefits to be derived from its use; this paper also was discussed considerably and considered a very important issue at the present time.

A number of other very important papers were read by Dr. I. E. Croken on Contagious Diseases in Live Stock on the Island, another by Dr. W. G. Church on Veterinary Hygiene. Further business of the year was brought to a close by the election of officers for the coming year as follows. President, Dr. J. A. Allen, Vice-President, Dr. I. E. Croken, Sec.-Treas., Dr. W. G. Church; Registrar, Dr. J. T. Cosgrove, Dr. Cannon, Dr. Thompson and the Hon. G. E. Hughes, were elected to the council.

It was moved by Dr. Allen and seconded by Dr. Croken that this Association approve of the resolutions passed at the meeting of the representatives of the Dominion association held in Ottawa on the 21st day of November, 1921. Carried.

W. G. Church, Sec.-Treas., Summerside, P. E. I.

NEW BRUNSWICK VETERINARY ASSOCIATION

A meeting of the New Brunswick Veterinary Association was held in St. John, N. B., on January 17th, 1922.

The following officers for the year were elected: President, Dr. E. H. Cook, St. Stephen, N. B.; Vice-President, Dr. A. Boyce, St. John, N. B.; Secretary, Dr. L. S. Doyle, Moncton, N. B.; Treasurer, Dr. A. T. Donovan, St. John, N.B.; Registrar, Dr. H. J. Pugsley, Fredericton, N. B.; Executive Council Drs. D. McCuaig, T.F. Johnston, J.L. Sullivan, R. Roy and E. Fowler. Dr. D. McCuaig, McAdam Junction, N. B., was elected Honourary President of the Association.

After the regular business was disposed of a very interesting report was given of the Dominion Veterinary Conference at Ottawa held in November of last year, by Dr. E. H. Cooke, the delegate.

A great deal of interest was evidenced toward the portion of the report that dealt with Dominion Registration.

Drs. Cook, Doyle and Pugsley left by the night train for Moncton to address the Dairymen's Convention at that city the following day.

E. H. Cook, President, St. Stephen, N. B.

CENTRAL CANADA VETERINARY ASSOCIATION

The Central Canada Veterinary Association held their Annual Meeting at Ottawa on January 31st in the Council Chambers of the City Hall. The members were welcomed by the Mayor of Ottawa after which the election of officers for the coming year took place: Hon. Patron, Hon. R. W. Motherwell, Minister of Agriculture; Hon. Presidents, Drs. J. G. Rutherford, C.M.G., F. Torrance, C. D. McGilvray and D. McAlpine. President, Dr. George Hilton, Vice-President, Dr. J. A. Bean, Executive Council, Drs. H. Sparks, D. Campbell, P. W. O'Hara, J. B. Hollingsworth, D. Demoulin, R. Barnes, O. Hall, W. H. Marriott; Legislative Committe, Drs. George Hilton, A. R. Metcalf, Auditors, Lieut. Col. A. W. Harris and Dr. H. Sparks.

Honourary Members: Drs. J. A. Amyot, W. J. R. Fowler, S. F. Tolmie, A. J. C. Hood, G. A. Dauth, Rev. J. E. Lindsay.

Secretary-Treasurer: C. H. Weaver, Ottawa, Ont.

Addresses were delivered by Drs. E. A. Watson, Chief Animal Pathologist and Dr. W. R. Wood of the Meat and Canned Food Division, Dept. of Agriculture, Ottawa.

The following new members were proposed and accepted: Dr. C. A. Keddy, Cornwall, Dr. W. R. Wood and Dr. A. G. Murray, Ottawa and Dr.

L. M. Heath, of Hull, Quebec.

The convention wound up in the evening with the annual dinner at the Russell Hotel. It proved a most enjoyable closing feature to a thoroughly successful meeting. About 40 sat down to dinner. Speeches were delivered by Mayor Plant of Ottawa, Dr. J. G. Rutherford C. M. G., Board of Railway Commissioners, Ottawa, Dr. J. H. Grisdale, Deputy Minister of Agriculture, Ottawa, Professor E. S. Archibald, Director of Experimental Farms, Ottawa, Dr. J. A. Amyot, Deputy Minister of Health, Ottawa, and Dr. C. D. McGilvray, Principal Ontario Veterinary College, Toronto.

Mayor Plants address was one of hearty welcome in which he stated that veterinarians could no longer be referred to as horse doctors, but scientists of a calling that ranked very high in the estimation of the public.

Dr. J. G. Rutherford said that 40 years of the best of his life had been spent in the veterinary profession. He contended that the qualities of judgment and training for Veterinarians was far more specific than that required for the medical profession, and that by their special training they far outshone the medical profession when it came to diagnosis of disease. He urged that Veterinarians pay more attention to studies of ailments of live stock.

Dr. J. H. Grisdale classed Veterinarians as professional men of high standing, and by their training were working for the benefit of the live-stock industry of Canada.

Professor Archibald pleaded for the Veterinarians to make a study of the cost of production of livestock; to assist with weeding out the scrub cattle and to give publicity to methods of prevention of disease among domestic animals.

Dr. J. A. Amyot spoke of the importance of clinical medicine and development of the power of observation. He urged Veterinarians to know their profession and laid particular stress upon the value of laboratory work.

Dr. C. W. McGilvray referred to the new College now under construction at Guelph and the value af the right kind of study for Veterinarians.

The speeches were interposed with vocal selections and recitations by Mr. Tom Stratton, of Ottawa, who sang several Scotch songs, Mr. J. R. Cooke of Westboro, gave French habitant selections to the delight of the members.

The meeting was well attended and was one of the most successful gatherings in the history of the Association.

C. H. WEAVER, Secretary-Treasurer,
Experimental Farm, Ottawa.

AMERICAN VETERINARY MEDICAL ASSOCIATION

The Executive Board of the American Veterinary Medical Association has decided to hold the next meeting of the Association in St. Louis, Missouri, August 28th to September 1st, 1922.

Plans are being made to have this essentially a practitioner's meeting. It is expected that there will be a two-days' clinic and a round table and smoker one evening to be in charge of the best authorities that can be procured. The clinic will be devoted largely to diseases of cattle, diseases of swine, diseases of small animals and poultry, as well as general clinic. It is hoped that all Canadian veterinarians who can, will attend this meeting—even if they are not members of the A.V.M.A. they will be welcome, and we feel sure that they will be amply repaid for the trip.

President Kinsley of the A. V. M. A. has appointed the following veterinarians as Resident Secretaries for the different provinces and Alaska:

Dr. S. Hadwen, Reindeer Experimental Station, Unakleet, Alaska.
Dr. J. C. Hargrave, Medicine Hat, Alberta.

Dr. J. W. Frank, Vancouver, B. C.
Dr. J. B. Still, Winnipeg, Manitoba.
Dr. J. Steen, Spring Garden Road, Bellevue, Halifax, N. S.
Dr. J. A. Campbell, 8 Elm Street, Toronto, Ontario.
Dr. C. J. Bonsfield, 120 Upper Prince Street, Charlottetown, P.E.I.
Dr. J. O. Langevin, 51 McGill Street, Montreal, Quebec.
Dr. M. Barker, Regina, Sask.

N. S. Mayo, Secretary, 4753 Ravenswood Avenue, Chicago, U. S. A.

THE VETERINARY ASSOCIATION OF MANITOBA

The annual meeting of the Veterinary Association of Manitoba was held in Winnipeg on February 7th and 8th. The first day of the meeting was held at the Royal Alexandra Hotel, Winnipeg, about fifty members of the Association being present.

The meeting was addressed by Dr. George Hilton, Chief Veterinary Inspector, Health of Animals Branch, Ottawa, on Tuberculosis. Dr. Hilton discussed the policies of the Department with regard to the Accredited Herd System and the Municipal Tuberculosis Order,and pointed out the importance of the eradiction of tuberculosis both from a public health and economic standpoint.

He stated that in from 18 to 26 per cent. of all deaths of children in Canada from tuberculosis, the disease found its origin in milk from infected cows and that investigations conducted by the New York Health Department with regard to human tuberculosis revealed the fact that 75 per cent. of the tuberculosis in the glands and bones of children was of bovine origin. Sixty-six per cent. of generalized tuberculosis, and ten per cent. of all tuberculosis in children between the ages of five and sixteen, could be traced to the same cause.

In one of the small cities in Ontario, 800 cases of tuberculosis affecting the glands and bones of children were found. The city health authorities decided to come under the operation of the Municipal Tuberculosis Order and upon the first test of the cows supplying milk to that city under this Order, it was found that 14½% of the cattle reacted to the test.

In one of the Dairies in this city, which was supposed to be a model dairy and the milk recommended by Medical authorities it was found that fifty per cent. of the cattle were affected with tuberculosis.

Dr. Hilton particularly emphasized the importance of co-operation between veterinarians, cattle breeders and all parties concerned, for the purpose of combating this disease.

Dr. W. A. Shoults of the Provincial Health Department, addressed the meeting on the "Control of animal food products in the interest of Public Health." He declared that milk was a most valuable food product and at the same time one of the cheapest, because it combined all the elements necessary for the development and nourishment of all organs and tissues in the human body, but, that it was at the same time, most susceptible to contamination and was responsible for more sickness and deaths than any other food stuffs. It was the product of an animal susceptible to a disease to which human beings were subject, namely, Tuberculosis. He also believed that many cases of Septic Sore Throat were caused by infected milk.

Addresses were also given by: Dr. N. V. James, of Gladstone, on "Surgical cases encountered in country practice."

Dr. J. Rowe Fisher, Brandon, on "The use of the stomach pump."

Dr. H. N. Thompson, of Virden, on "Goitre affecting live stock."

All of which brought out a lively discussion.

A hearty vote of thanks was moved and seconded by members of the Association to Dr. F. Torrance, Veterinary Director General, Dr. George

Hilton and the members who addressed the meeting, for their assistance in making the meeting successful.

On February 8th, a demonstration of the newer methods of tuberculin testing and Post Mortem examination of reacting animals was conducted at the Stock Yards and Abattoir of Gordon Ironside & Fares Co., Winnipeg, by Inspectors of the Contagious Diseases and Meat Inspection Division of the Health of Animals Branch, at which about thirty members were present.

Officers elected for the following years were as follows: President, Dr. H. R. McEwen, Stonewall; Vice-President, Dr. J. R. Fisher, Brandon; Secretary-Treasurer, Dr. J. B. Still, Winnipeg.

Council—Dr. J. R. Fisher, Dr. W. Hilton, Dr. J. A. Munn, Dr. H. R. McEwen, Dr. J. B. Still, Dr. W. A. Shoults, Dr. H. N. Thompson.

Examining Board—Dr. W. Hilton, Dr. J. A. Munn, Dr. W. Shoults.

Auditors—Dr. J. A. Stevenson and Dr. J. G. Macdonald. Representative on the Dominion Advisory Board, Dr. J. A. Munn.

A resolution was also moved, seconded and carried, that for the coming year the subscription to the Canadian Veterinary Record, would be included in the annual dues of the Association, the fee being raised from four to six dollars. In the case of partnerships, the fee for the Canadian Veterinary Record, to be collected from one member of the firm only.

J. B. STILL, Secretary-Treasurer, Winnipeg.

THE ONTARIO VETERINARY ASSOCIATION

The winter meeting of the Association was held at the Ontario Veterinary College on Wednesday and Thursday, February 15th and 16th, and was attended by about two hundred veterinarians.

In his opening address the President, Dr. J. A. Campbell, said that it was gratifying to him to see so many present; and he was sure that Drs. Batt and Glover, who had charge of the program, would be glad that they had spent so much time in an endeavour to make the proceedings enjoyable and instructive. Dr. Campbell spoke on the Ottawa conference at which he represented this Association. He went on to say that a Veterinarian's usefulness must not end with his connection with live-stock, but he should interest himself in any movement that is to better mankind in the community in which he lives. He also emphasized the fact that closer cooperation was needed between the medical and veterinary profession.

Mr. Bert Roadhouse, Deputy Minister of Agriculture, next addressed the meeting owing to the unavoidable absence of the Hon. Manning W. Doherty. He concluded his address by extending a cordially invitation to the Association to hold future meetings at the new veterinary college at Guelph.

"The Present Position of Biologics in the Control of Bovine Contagious Abortion", was then presented by Dr. R. A. McIntosh. A concise outline of the disease as to its cause, dissemination and economic importance was first given, and then the various pharmaceutical and biological products that had been used in the attempts to control the disease was discussed. Charts were shown exhibiting the results obtained in various countries by trying to immunize cattle with bacterins, vaccines, and sera, and Dr. McIntosh also presented some data from his own experiments. These all showed that where it was deemed advisable to use biological products, vaccines apparently gave the best results. This paper naturally brought forth much discussion in which Drs. Watson, Scholfield, W. J. Wilson, Jaques, and Spence took part.

The meeting adjourned at noon for lunch in the Assembly Hall.

The afternoon session commenced with an address by Dr. F. W. Schofield on "Modes of Infection in Tuberculosis". He dealt with different

ways in which the Tuberculosis spread from the diseased to the healthy animal. The diseased cow with open lesions is the animal which infects the herd. In the case of swine the immediate source of infection is the non-sterilized dairy by-product. In all animal species, including man, infection occurs most frequently by contact. By this is meant the transfer, within a short period of time, of the virus from the diseased to the healthy animal. The spread of disease by food, water and air was fully dealt with, and it was suggested that infected swine might prove to be a source of danger to an Accredited herd. General discussion followed this instructive and interesting talk.

Dr. Gwatkin then addressed the assembly on "The Bacteriology of Tuberculosis." He first of all discussed the subject from its historical standpoint, and then went on to the distribution of the organism. The different types of the tubercle bacillus were explained, and the morphology, staining properties, cultivation and resistance fully discussed. Tuberculin and its preparation was also dealt with. This excellent address was concluded with an explanation of the reaction of tuberculin.

"The Pathology of Tuberculosis," by Dr. H. E. Batt, was the next item on the program. The formation of a tubercle from its beginning was discussed, and the macroscopic and microscopic appearances described. Emphasis was laid on the importance of 'healed' lesions.

Dr. C. D. McGilvray gave an instructive talk on the Tuberculin Tests. He thoroughly described these tests as to their mode of application and the interpretation of results. Dr. McGilvray pointed out that the testing for Tuberculosis was a delicate scientific procedure and requires integrity of character as well as sound judgment and perfect technique.

Several prominent men of the live-stock world, including Mr. Jos. Brethour of Burford; Mr. Rothwell, Chief Animal Husbandryman; Experimental Farm, Ottawa; Mr. Burton, Professor of Animal Husbandry, Macdonald College, Quebec; and Mr. Telfer of Paris, were also present and addressed the meeting.

Refreshments were served in the Assembly Hall at 6 o'clock, and the evening session commenced at 7 o'clock.

Dr. M. V. Gallivan, Inspector, Health of Animals Branch, was the first speaker of the evening. His paper was on "Field Work in Canada," and dealt with an inspector's duties in connection with controlling Mange, Hog Cholera, Glanders, Dourine, and other diseases, especially as applied to Western Canada, where Dr. Gallivan spent many years. His paper we hope to see published at some future date.

"Tuberculosis Control in Canada" was the subject of an address then delivered by Dr. F. Torrance, Veterinary Director General. The Accredited Herd Plan and the system adopted in certain municipalities for ensuring a supply of milk from tuberculosis free herds were thoroughly discussed. Figures were presented which showed the immense popularity amongst owners of pure bred cattle of the Accredited Herd Plan.

Dr. Neil, Inspector-in-charge, B. A. I., Chicago, was then called upon to speak, and gave an interesting talk on the activities of his department.

Business matters of importance were also dealt with during the evening session.

Clinics occupied the morning of the second day. Dr. W. J. R. Fowler, operated on a gelding which had two Scirrhus Cords, and another subject for Poll Evil. The technique of the operations were thoroughly described step by step, and an opportunity was given for any present to examine the subjects. Dr. D. R. Caley operated on the third subject, a horse with a fistulous tract over the eye. He also explained all details of the operation, and Dr. J. Dunn acted as anaesthetist, using a muzzle of his own design. The clinics were well attended, and everyone present remarked on the benedrived from them. Adjournment was then made to the lunch room.

The afternoon session commenced at 1.30, Dr. Batt occupying the chair. A Code of Ethics was presented by Col. J. H. Wilson and Col. W. J. Morgan. These gentlemen have prepared an excellent code of ethical rules at the request of the Association, and it was decided to print them as early as possible in the C. V. R. Meanwhile the executive were asked to revise any of the rules, if found necessary, so that they can be adopted by the O. V. A. General discussion followed.

Dr. A. R. B. Richmond, Chief of the Division of Food Inspection for the Municipality of Toronto, next gave an interesting address on Municipal Food Inspection. The work carried on by his department was described in full, and the importance of the work explained. Dr. Richmond offered to give his assistance to any other Veterinarian in the Province who may be engaged along similar lines. We hope to have the opportunity at an early date of seeing this address in the Canadian Veterinary Record.

The last, but by no means the least important, paper was "Horse versus Motor," by Lieut.-Col. T.C. Evans. From the standpoint of both city delivery and farm work the speaker emphatically backed the horse against the motor and tractor. Colonel Evans declared that the horse is a long way from becoming obsolete, and that the demand for good horses now exceeds the supply by very long odds. This paper contained so many points of vital interest backed by actual facts that its early publication is essential.

The meeting concluded with two excellent films, one dealing with the infestation of round worms in swine and the other with Tuberculosis. These were prepared under the direction of the B. A. I., and Dr. Torrance made arrangements for them to be shown at the meeting. Needless to say they were greatly appreciated.

A hearty vote of thanks was extended by the President to all those who took part in the programe, and what was considered by many the best meeting of its kind they had ever attended, same to an end at six o'clock.

J. S. GLOVER, Secretary-Treasurer.

Dr. J. B. Hollingsworth, the popular and energetic Chief Food Inspector of Ottawa, Ontario, has been elected Second-Vice President of the International Association of Dairy and Milk Inspectors, held at New York last December.

FIVE CHILDREN CONTRACT TUBERCULOSIS FROM MILK OF INFECTED COW.

In "Veterinary Medicine" for October is an account of a farmer in Edgar County, Illinois, who had his herd tested for tuberculosis and one cow reacted. Instead of destroying her, the farmer declared the test undependable, removed the ear tag and sold her to his hired man for wages.

Of seven children in the man's family, five have contracted pronounced cases of tuberculosis. The other two did not drink this cow's milk. A pig and cat also contracted the disease after drinking the milk. A warrant has been issued for the original owner on charge of breaking quarantine, and, it is stated, should one of the children die, he will be subject to a charge of manslaughter.

Dr. T. H. Jagger, past President of the British Columbia Veterinary Association, has been appointed Lecturer of Veterinary Science, at the University of British Columbia.

Bishop—What is the enlargement on the outside of that nigh fore leg.
Browne—Looks like a wrist watch.

COLLEGE NOTES

RESOURCEFULNESS

A True Story

R. G. Cuthbert, Toronto.

Dramatis Personae:—

Sadie ..... The Patient Cow
Perpetual Motion ..... The Horse
Doc Saemia ..... The Veterinarian
Sigh ..... The Farmer
Lizzie ..... Sigh's Wife
Scene ..... Barn—A Driveway

Sadie had been ill for several days with prepartum paresis and at last Doc. thought it advisable to raise her to her feet. Incentive was applied, for and aft, but with no response. After all ordinary means had failed, Doc's resourcefulness was called upon and in looking around for a hoist of some kind he espied the hay fork dangling from its lofty eminence. A sling was hastily made from strips of binder canvas, this was passed around poor Sadie and the fork was lowered, unhooked, and replaced by the sling. Perpetual Motion, in the stable day-dreaming about how, twenty-five years ago, he used to frolic with the other colts in the green meadows, was promptly harnessed and brought onto the scene. Then, according to Si, no one knew how to handle Perpetual Motion on the fork like his wife, so Liz must be called to lead him as that had been her job since they were married.

Things seemed to be going alright, theoretically, but when they were put into practice—the old horse knew his route. His twenty years apprenticeship had almost made him a professional and nothing could stop him until he got to the end of his usual route. The commanding voices of Si and Doc only seemed to stimulate him and the iron hand of Liz was of no consequence whatever. Si suddenly thought of the trip rope, but that had been taken off with the fork. After describing several circles around the driveway in a kind of fox-trot movement, Si came to himself and awaited developments. Beef and hide seemed to be going higher and higher until the peak was reached. The gate opened and Sadie glided towards the hay mow. Suddenly she became so elated at her rise to dizzy heights that she tried to fly, her struggles causing the bottom to fall out of the slings, and down came beef and hide as well. It made a slight pause at the edge of the hay mow, but eventually landed in a heap at the feet of the mute spectators.

Thus ended the career of the noble Sadie, death being due to sudden stop.

"COWSLIP"

If it takes two months to make the first floor of the college into a bank how long will it take to remodel the whole building?

C. B.—Sir, how would you examine a horse for spavin?
Dr. P.—Well, let's hear how you would go about it.
C. B. —Ah-h-h, I'd jack up the leg and-d-d-.
Dr. P.—Easily seen you've been used to tire trouble.

McLean and Holmes both declare that they never farmed to any extent but they cannot make us believe that. We actually saw them out at the rear of the college making hay.

Visitor—"I say, is that not Premier Drury and President Wilson over there?"

Egan—"Why no, that is Mr. Baker and Mr. Shirley."

The body we know to be concrete, the mind to be an abstract thing. The bridge between the two must be constructed of one or the other, or perchance, as suggested by one eminent writer, a substance intermediate between mind and matter. To this Mercier aptly remarks, "Imagine a thing which is partly an iron bar and partly a smell of paint, without being exclusively either."

In the bacteriological lab. on Monday afternoon, February 5th, a sudden blaze broke out in the cotton stoppers of a rack of test tubes owned by one Mr. Lumsden. Fire chief T. Lindsay was soon on the scene and was able to quickly extinguish the fire. The Chief felt a bit abashed, however, when informed that instead of rescuing a valuable piece of property from flames he had only drowned a number of test tubes in process of being sterilized.

The American Associaion for the Advancement of Science (A.A.A.S.) held its seventy-fourth meeting at the University of Toronto, December 27th to 31st, 1921. It attracted scientists from all the provinces of Canada from every state in the United States as well as from several other continents.

The general programme was arranged under the names of sciences represented by the several sections of the Association. One of the most interesting papers was that given by Dr. Ransom on the Ascaris lumbricoides of swine. The use of motion pictures made it especially interesting. He showed the great possibilities of minimizing the losses caused by this parasite in young pigs. Extensive work done on a number of farms in the Middle West was most highly successful. The methods of control consist for the most part of a thorough cleaning of the pens and runs. Dr. Ransom laid great emphasis on the protection of young pigs from this infection by removing them to fresh clean quarters soon after birth.

RESOLUTION PASSED BY THE ONTARIO VETERINARY ASSOCIATION IN ANNUAL CONVENTION, AT TORONTO, FEBRUARY 15th and 16th, 1922.

Moved by C. D. McGilvray, seconded by T. C. Evans.

Whereas the live stock interests of Canada have so far been effectively safeguarded against economic losses from serious contagious diseases of animals including Foot and Mouth Disease and Contagious Pleura-Pneumonia of cattle by the veterinary profession and the unwarranted stigma against Canadian cattle, upon which the so-called British Embargo was based, has been refuted, and

Whereas a representative delegation of live stock breeders appeared before the Ontario Veterinary Association at its meeting at Toronto on February 15th and urged upon its members the desirability of further co-operation and enlarging their field of service to the live stock interests in solving further problems relating to the investigation, prevention and suppression of definite infectious, parasitic and nutritional diseases of animals.

Therefore be it resolved that the members of the Ontario Veterinary As-

sociation assembled in convention at Toronto on the 15th of February, 1922, herewith record their willingness to assist to the fullest possible extent in meeting the wishes expressed by the said delegation, but regret the lack of resources at their disposal and would therefore urge the Minister of Agriculture and the other members of the Dominion Government, and the Minister of Agriculture and the other members of the Legislature for the Province of Ontario, the desirability of providing to a reasonable extent such resources as may be necessary for the establishment and maintenance of adequate laboratories, with the required staff and facilities for clinical, investigational and research purposes in order that the proper standard of service expected of the veterinary profession may be assured to the live stock interests of Canada.

LIVE STOCK IN ONTARIO

The following figures were supplied by the Ontario Minister of Agriculture at an address to the students of the Ontario Veterinary College. The total value of live stock in Ontario is 326,737,337 dollars.

Horses (all ages)	Number	704,640.	Value	$ 89,606,594
Cattle, milch cows	Number	1,170,010.	Value	100,429,918
Other cattle	Number	1,711,817.	Value	76,467,572
Sheep and Lambs	Number	1,129,084.	Value	16,191,741
Swine	Number	1,614,356.	Value	1,614,356
Poultry	Number	11,005,645.	Value	11,787,798

The value for the several classes of horses on hand June 15th, 1920, were as follows: Stallions, $1,183,465; mares, $47,683,656; geldings, $34,609,721; colts and fillies, $6,129,752.

The value for the several other classes of "other cattle" on hand were as follows: bulls, $7,074,436; calves, $15,662,280; steers, $16,678,839; all other cattle except milch cows $37,052,017.

The value for all classes of poultry on hand were as follows: Turkeys, $915,078; geese, $977,081; ducks, $364,006; other fowls, $9,531,543.

The many specimens formerly to be seen in the college museum have been replaced in part by an "Official Bouncer".

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CORRESPONDENCE

1316 Walnut Ave., Van., B.C., Jan. 14th, 1921.

Sir,—At a general meeting of the British Columbia Veterinary Association held in Vancouver on December 17th, at which a report was received, as stated at the recent Ottawa Veterinary Conference that there was a grave lack of attendance at Veterinary Colleges in Canada, and a consequent scarcity of qualified veterinarians to safeguard the health of the livestock of Canada, the enclosed resolution was unanimously passed for your consideration.

I might add that recently the entrance requirements and length of course at the Veterinary Colleges were raised to equal that of the Medical colleges, but that there has not been a corresponding recognition of the increased value of the Veterinarian's services, which I think accounts for the much smaller number of young men being desirous of entering the profession.

We would like you to assist in placing the Veterinary Profession in a better position, which it justly deserves. Yours faithfully,

A. J. DAMMON, President.

RESOLUTION PASSED BY THE BRITISH COLUMBIA VETERINARY ASSOCIATION

Moved by Dr. Hoggan and Seconded by Dr. Strong that this Association inform the Veterinary Colleges in Canada that we do not feel justified in trying to increase their attendance until such time as they make some effort to better the condition of the existing Veterinarians, as at the present time there is little inducement to enter the profession, and that this Association deplores the lack of support given to the Veterinary Profession, the Veterinary practitioner in particular, by the Governments, Colleges and Daily and Farm Press and be it further resolved that the various efforts which at the present time seem to be directed to assisting the stock owner to do without the services of the Veterinarian, are a detriment to the profession and not in the best interests of the owner.

And be it further resolved that we deplore the present tendency of many B.S.A. graduates to pose as Veterinary surgeons and that in the opinion of this Association it is more important to see that the existing Veterinarian receives a just reward for his skill and services, than to turn out a number of young graduates who when they experience the true condition of the profession will leave it in disgust as many older and experienced, capable graduates are doing at the present time, and that copies of this resolution be sent to the Dominion Department of Agriculture, the Provincial Department of Agriculture, the Veterinary Director-General, the Veterinary Colleges and the Daily and Farm Press and the Canadian Veterinary Record. January 14th, 1922.

(The above resolution is, in the opinion of the Record, drastic. While the British Columbia Veterinary Association may desire to voice themselves as against giving any moral support to Veterinary Colleges, what will it profit the profession to publish the sad story to the world?

Canadian Veterinary Colleges, by increasing the standards of matriculation requirements and lengthening the course from two to four years leading to a degree in Veterinary Medicine, have undoubtedly enhanced the present status of the existing graduate. By influencing the Government in Ontario, the Colleges were instrumental in closing down the Correspondence Schools and preventing the issuing of diplomas to quacks.

Editor, Can. Vet. Record.)

REVIEWS

NOTES ON MANGES AND ALLIED MITES FOR VETERINARIANS. By A. W. NOEL PILLARS, F.R.C.V.S., F.S.Z., XII+110, with 68 plates and figures. Published by Bailliere, Tindall & Cox, 8 Henrietta Street, London, W. C. 2., England.

As stated in the preface it is largely a compilation, and the author has drawn much from Megnin, Railliet and others. Most of the photo-micrographs were made by the author, but the best of the figures are taken from various works on mites. Generally speaking drawings are far superior to photo-micrographs as a help in the determination of a species.

Several useful points are discussed in the introduction on mounting mites classification and an account of structure and nomenclature.

Chapters II. to V. are on the families **Dermodicidae, Sarcoptidae** and **Cytoleichidae**, p. p. 12 to 62. This part of the book is by far the most valuable to students and veterinarians, and it is a pity that the author did not extend and enlarge it. Chapter V. is on non-parasitic mites which are discussed at some length. Chapter VI. concerns a number of families of mites which have little interest to veterinarians, excepting a few such as **Tetranychus, Trombidium, Dermanyssus** and the **Gamasids** which occasionally cause trouble.

The final chapter or appendix should, in the opinion of the reviewer, have been left out altogether. The term "military mites" should not have been used. It is quite to be expected that many mites and insects are to be found on animals, and veterinarians should not be confused by them any more than by ordinary artifacts which are so commonly encountered on slides prepared for the microscope.

When a diagnosis of mange has been made in a new centre of infection, or in other words, whenever it is important that a correct and positive finding be recorded, the person making the diagnosis should be expected to corroborate his findings by mounting some of the mites and preserving them for future reference. This is not too much to expect from any veterinary surgeon who is qualified to practice his profession.

Notes on Mange and Allied Mites is a work which deserves credit and the author is to be commended for the care and pains he has devoted to its preparation.

As a book of reference for students it will serve as a supplement to the works now in use at Veterinary Colleges. It has a place in libraries, especially as its sets forth the British Army view point on mange.—S. H.

BAILLIERE'S ATLAS OF THE DOG—It's Anatomy and Physiology. By FRED K. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E., and F. HAROLD STANTON, F.R.C.V.S. With 5 colored plates and 43 coloured figures. By GEORGE DUPEY, M.D. Published by Bailliere, Tindall & Cox, 8 Henrietta Street, London, W. C. 2., England. Price 10s. 6d. net.

The atlas will serve a very useful purpose to all veterinary surgeons engaged in dog practice. It is so clear in detail that it is invaluable to the student. The plates are movable, permitting a view of the deeper structures in situ, and allows the relationship of the organs to be seen at a glance.

The skeleton and systems are all well described and the colouring beautifully done. The authors and the artist are men well known in Europe and Professor Hobday needs little introduction to Canadian and American practitioners. The work bears the hall mark of quality and good finish

and we do not hesitate to recommend it to all who are in need of a work such as this. It will undoubtedly meet with a good sale on this continent and should be in the surgery and library of every practitioner.

—T. C. E.

ARMY VETERINARY SERVICE IN WAR by MAJOR-GENERAL, SIR JOHN MOORE, K.C.M.G., C.B., F.R.C.V.S., A. V. C., Director of Veterinary Services, and late Director of Veterinary Services, British Expeditionary Force, France, 1914-19, Pp. 191, Illustrated. Pub. by H. & W. Brown, 20 Fulham Road, London, S.W. 3 England.

It would be very difficult to find a writer who is better qualified than Major-General Sir John Moore to compile such a work as this. It deals in an exhaustive manner with the administration of Veterinary Services in France from the outbreak of war until the armistice was signed by Germany in 1918.

The book is divided into six parts. Part one contains eight chapters dealing with organization and functions of the various branches of the Service. Part two records general facts in connection with wastage of animals during war, with one chapter devoted to conditions in India. It also gives a general idea of the use of bullocks, yaks, camels and elephants as beasts of burden with the British Army in different parts of the Empire.

General Moore speaks well of the Infantry's excellent horsemanship. "A very bright feature of the late war was the splendid manner in which the Infantry looked after their horses, and it is certainly a matter deserving of the highest commendation and record in the annals of our Infantry in War." General Moore considers that their success in this direction was due to organization and providing for Battalion Transport Officers. He states "I wish that the Artillery, in which arm the heaviest work and greatest wastage lay, could have been simularly provided." He refers to "horse-masters" and wagon line officers as "nobody's children". The cause of wastage and inefficiency are grouped under the following headings. Debility and exhaustion, battle casualties, accidental injuries, contagious and specific diseases.

Speaking of Debility and Exhaustion in chap. 3, part 2, the author states, "The history of every campaign unfortunately teems with the improvished and exhausted condition to which animals are sometimes reduced much of it is inseparable from the hard work, exposure and other issues of war, but it is a regretable fact that a good deal of it is avoidable and it represents an accompaniment of war that is discreditable and is open on occasions to storms of criticism as acts of cruelty. Poverty and its accompanying exhaustion is the hall-mark or evidence of indifferent supervision and care of animals, or a bad system in respect to their management. It is always in inverse ratio to the standard of animal management attained"
"History points to the necessity for the enforcement of stern disciplinary measure when neglect is apparent". In part 3 the subject of the Army Veterinary Service as an instructional agency is very ably discussed. It can be well understood that the lack of knowledge of horses in some units was not surprising. General Moore mentioned a Division, for example, in which the Infantry consisted of seamen, while the Artillery was composed mostly of men whose civil occupation was mining. The Veterinary Service in such instances was called upon to do instructional work because, as the author points out, precept is founded on a knowledge of Veterinary Anatomy and Physiology and it was only natural that the A.V.C., should teach the common application of the science of animal management.

There is a chapter on shoeing and part 4 deals exclusively with the

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merits and demerits of different animals used in war, in many parts of the Empire.

The conclusions are summarized in the 5th part under economy and includes extracts from official dispatches by famous Commanders-in-Chief of the various Forces operating on the different Fronts, all of which goes to show that the Army Veterinary Service held an important and vital position in the organization of the fighting forces of the Allies.

The book is dedicated to all ranks of the R.A.V.C. and A.V.C., India, who faithfully served their country during the war. The print is clear and is very neatly bound in cream cloth with the familiar flag of the Corps on cover. It is rather apparent that the work has been carelessly proof-read. In certain places are typographical errors which should not have been allowed to escape the vigilance of the proof-reader.

The proceeds from the sale are to be devoted to the foundation of a benevolent fund for the personnel of the A.V.C. in India.

This book is of distinctive instructional value, not only to those of us who saw service with the R.A.V.C., in Europe, but to all branches of Mounted Units. It is a valuable guide and text book for the A.V.C. of the future and will be read with interest by horsemen all over the world.

—T. C. E.

FOOD REQUIREMENTS OF THE RANCH FOX, By G. ENNIS SMITH, B. A. Sc., No. 9. Published By The Advisory Board For Scientific And Industrial Research, Ottawa, Ontario.

The Advisory Research Council acting in Co-operation with the Health of Animals Branch, Department of Agriculture, constructed an experimental ranch at the Health of Animals Research Station Hull, P. Q. The foxes supplied for the experimental work were donated by the fox breeders of Summerside, P. E. I., to whom many thanks are tendered.

The daily food requirements of a fox was estimated and experiments made with a view of determining the effects of overfeeding in excess quantities over an extended period.

Some foxes were fed an excess of 50% and others 25%, 10% and 5%. Smith finds that in all cases with the adult fox those fed amounts of fed 50% and 25% in excess of minimum requirements did better than those food slightly in excess of the minimum requirements did better than those more alert, better in condition and "there even seemed to be an improvement in the quality and development of the fur." It is estimated that the daily ration of a ranch fox should provide the following number of calories in respect to live weight.

Weight of Fox	Fuel value of daily ration.
9 lbs.	410 calories.
10 lbs.	450 calories.
11 lbs.	490 calories.
12 lbs.	530 calories.

The bulletin gives tables of balanced rations for foxes of different weights, each table showing the total fuel value.

Requirements of the foxes during the breeding season are dealt with at some length, while the author suggests that it is not feasible to draw final conclusions from his results of but a single season and with a limited number of foxes, the influence of certain factors in experiments are so apparent that recommendations can well be made.

The chief fault in the diet of the ranch fox from a survey of ranch feeding methods, is through one or more of the following factors, underfeeding, overfeeding, a too restricted diet, a protein deficiency, a mineral deficiency, or a lack of food accessories.

The diet fed pregnant foxes at the experimental station was made up of:

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(1) Meat and meat products. (2) Milk. (3) Eggs. (4) Biscuits. (5) Yeast. Upon this diet fed as in stated quantities with only 5% to 10% in excess of the minimum required to maintain weight, the station has produced pups with good growth of guard hairs of silky lustre and excellent colour. These pups at five months exceeded the weight and measurements of their parents.

To supply the necessary amount of food accessories, one egg and about one tenth of an ounce of yeast cake, is added to the milk on alternate days.

The bulletin deals with the food requirements of the pups during the periods after they are weaned.

Smith recommends that at eight weeks old pups should be separated from their mothers. The diet of the young pups should not be too restricted. He states that the inclusion of milk and eggs ensures a supply food accessory.

The bulletin also gives the diet deficiences that may happen during the winter and measures that should be taken to prevent them.

We think that the work done and the results recorded by Ennis Smith in the Bulletin although of a preliminary character are a worthy contribution to the fox raising industry.

There is no doubt that the fox breeding industry suffered considerably from lack of a knowledge of fox nutrition and Ennis Smith's work is valuable on that account.

The author gets down to his subject in good style and has avoided a lot of useless preamble so tiresome to the reader. The bulletin we feel sure will be a valuable contribution to other research work which has been done by investigators who have made a study of the economic conditions of the fox in captivity, notably Allen.

The bulletin is very attractively published, apparently no expense having been spared in its preparation. It will be very valuable to the fox breeders.

—T. C. E.

CALCIUM TREATMENT OF PURPURA HEMORRHAGICA

Hubert Sieben. Med. Klin. 17, 105 - 7 (1921).

The results obtained by the injection of Calcium in purpura hemorrhagica depend upon the effect of Calcium upon the blood coagulation and perhaps also upon its action upon the colloids of the endothelium.

(G. H. S. in "Chemical Abstracts".)

DETECTION OF GOAT MILK IN MIXTURES WITH COW MILK.

Walter Austen. Milchwirtschaft Zentr. 10, 125-7 (1921).

Twenty cubic centimeters of skimmed milk placed in a Gerber fat determination tube+2 c.c. of 25% NH_3 are mixed and placed in water bath at 50°—60° C. for ½hour. The tube is then centrifuged at 1200 r.p.m. Cow milk gives little or no ppt.. Above 20% goat milk gives a marked ppt. Under 20% goat milk results are more or less uncertain.

(G. E. Holm in "Chemical Abstracts")

CONCERNING TOXIC BY-PRODUCTS OF BACILLUS BOTULINUS

J. Bronfenbrenner, M. J. Schlesingir and P. F. Orr—Harvard Med. Sch., Pro. Soc. Exptl. Biol. Med. 18—181-2 (1921).

When B. Botulinus is grown on suitable medium there are produced, in addition to the sp. toxin, other poisonous products. These are not neutralized by the sp. botulinus antitoxin. They are dialysable, act only in large amounts and exert their action immediately upon injection and not after a period of incubation. Characteristic of bacterial toxins, they are thermostable and are not destroyed when heated in a sealed tube, in the open container their toxicity diminishes. They are chemical by-products of the bacterial metabolism.

(V. C. Myers in "Chemical Abstracts").

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THE DEATH OF MR. J. B. DUNLOP, M. R. C. V. S.

In the romantic page of history which will portray the rise and development of the pneumatic type the name of Mr. Dunlop must occupy an honourable place.

James Boyd Dunlop was a Scotchman, a native of the county of Ayr where he was born on February 5th, 1840. He adopted the Veterinary profession much against his parents' wishes, at a very early age. They did not consider him suited to that profession, but he persisted and graduates at the age of 19 from the Royal (Dick) Veterinary College, Edinburgh. He soon took up practice at Belfast, Ireland, where he became one of the leaders of the profession.

Like most great inventions, the idea of the pneumatic tyre came to Mr. Dunlop quite simply. He told the story himself in an article in the birthday issue of the Irsh Cyclist and Motor Cyclist. His late son, John, at the age of nine, had a tricycle, and it was decided to experiment with it by attaching air tyres, which would skim over all surfaces quickly. Towards the end of 1887, Mr. Dunlop procured a small disc of wood, made an air tube of sheet rubber, 1-32 inch thick, and secured it to the disc by the means of a thin strip of linen. The front wheel, with its small solid tyre, was removed from the tricycle, and a private demonstration proved the air tube to be incomparably faster than the solid.

He then made and fitted two very large rims and tyres for the rear wheels of the tricycle. The front fork was too narrow to take an air tyre. On the evening of the 28th February, 1888, "Johnny" took the tricycle out, and was told to go for all the newly laid macadam he could find. He was out for a long time. Next morning the outer rubber was carefully examined, and not a scratch could be found on its surface. The air supply tubes had each a non-return valve. The supply tubes outside of the wooden rims were tied like that of a football and concealed in recesses in the rims. Next evening the tricycle was dismantled and laid past, never to be ridden again.

An up-to-date tricycle, minus driving wheels and spokes, was next procured. Mr. Dunlop built the wheels himself, the rims being of American elm, two inches broad, and flat on the outer surface. They were finished in July, 1888, and a friend assisted him to protect the tyre. "Johnny" on the new tricycle gave two local "fliers" a warm time in a race along the longest straight macadamized thoroughfare in Belfast. After further tests, Mr. Dunlop ordered a pair of thin air tubes in lengths, and made and fitted the tyres, which were ridden daily for two months till near Christmas, and were ridden afterwards about 3,000 miles.

The new invention was soon put upon the market, and a company was formed to develop it. The first machines made with the Dunlop tyre appeared clumsy and ungainly as compared with a neat solid tyre, and when they appeared on the racing tracks they usually evoked shouts of derision. Mr. R. J. Mecredy was one of the earliest believers in the new tyre, and he had the distinction of winning many victories with it. Ultimately it received the splendid advertisement of being banned from the races, but its success was then assured.

When asked recently by an interviewer if he had made much money out of the invention, Mr. Dunlop said, "Not so much as I should have made," and then he added with a certain bitterness, "If I had it to do again, and if I had any idea that I would have been attacked as I have, I never would have divulged it. I am quite sure that my life would have been much more valuable than money I have made out of it."

Ether Vaporizing Outfit for the Treatment of Mastitis in Cattle, as devised and used by A. T. Peters, D. V. M., Peoria, Illinois.

The treatment consists of etherizing the udder, which technique is almost the same as that used in treatment of milk fever, only that the ether is not injected into the quarters (but that it is allowed to be vaporized into the quarters). This is accomplished by inserting a milk tube into the quarter affected, to which a rubber tubing has been attached and to the other end of this tubing a metal cylinder. The ether is poured into the metal cylinder then immersed into boiling water, which will cause an almost instant vapourization. This allows the ether vapour to penetrate through the entire quarter affected. To prevent the escape of the ether vapour tie tape around the entrance of the quarter.

Dr. Peters has had very satisfactory results from this method due to the fact that ether has a powerful germicidal effect and that the vapors of ether penetrate into every crevice of the udder, thereby destroying the growth and multiplication of the germs. For complete details covering this treatment refer to "The Vitamineral News," Volume 1, No. 2, dated August, 1921.

Outfit consists of a heavy brass nickel plated cylinder, two-ounce capacity, to which is attached three feet of tubing of proper size and attached thereto a self-retaining milk tube.

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INFLUENCE OF CHAULMOOGRA ON THE TUBERCLE BACILLUS.
John A. Kolmer, Luther C. Davis and Rudolph L. Jager. J. Infect. Diseases 28, 265--9 (1921).

Both undiluted in paraffin oil, chaulmoogra oil had no germicidal influence on a bovine strain of tubercle bacilli in vitro. Administered intra-muscularly at weekly intervals in doses of o.2 c.c. per 100 grams body weight it had but a very slight effect on the course of tuberculosis in guinea pigs. The oil had no deleterious effect on pigs except local inflammation at site of infections. No experiments were conducted with the Na. Salts of the acids of this oil, in this study.

STUDIES ON BACILLUS BOTULINUS.
Orr, Paul F., Harvard Univ. J. Med. Res. 42, 127-36 (1921).

The toxins produced by ten different strains of B. Botulinus were found to be comparatively thermolable. At 80 degrees they are destroyed within from 30 sec. to 5 min., at 72 degrees within from 2-18 min. and at 65 degrees within 10-85 min. The heating of any food material to boiling point will destroy all traces of botulinus toxin that might be present. The average temp. co-efficiency of the destruction of the toxins on increasing the temperature from 65 degrees to 72 degrees was found to be 5.2 while on increasing the temperature from 72 degrees to 80 degrees the average temp. co-efficient was 4.2.

(E. B. Frink in "Chemical Abstracts".)

EFFECTS OF SOME CUCURBITA SEEDS ON ANIMAL METABOLISM
B. Masuroosky. N. J. Agr. Expt. Sta. J. Agr. Research 21, 523-39 (1921).

The whole fruit of the pumpkin family are not fed as the prevailing belief is that it is injurious and causes abnormal urination. Masuroosky, using himself as the subject, carried out experiments to see the effects of pumpkin and squash seeds on his urine. It was found that in the amounts he used they inhibited kidney excretion. The volume total solids, nitrogen and creatinine of the urine were decreased but the acidity increased.

Another experiment was conducted to ascertain the effect on the metabolism of the whole fruit on young pigs. The results of his experiments lead him to believe that the existing opinion of farmers that pumpkin seeds are injurious to young pigs is groundless.

DIAZO TEST FOR BILIRUBIN.
A. A. H. Van den Bergh. Presse Medicale 29, 441 (1921) J. Am. Med. Assoc. 77, 235.

This test is reliable in a concentration as low as 1 in 1.5 million and can be applied with as little as 0.25 c.c. of clear serum. The rapid or delayed response shows further whether bilirubin in the blood serum is the result of obstruction or of impaired liver functioning. The reagent is made fresh with 25 c.c. of a one per thousand solution of sulfanilic acid, 15 c.c. of concentrated H.C*l*. and O. 75 c.c. of a 5% solution of Na. NO*2*. The serum is treated with twice its volume of alcohol and the albumin centrifuged out. The supernatant fluid is taken up with a pipett, and the reagent added in the proportion of 25% by volume. The fluid turns red with a violet tinge in the presence of bilirubin.

(L. W. Riggs in "Chemical Abstracts".)

THE SIGNIFICANCE OF MAST CELLS.
M. Staemmler. Frankfurter Z. Path. 25, 391-435 (1921).

Mast cells are single-celled glandular organs of the connective tissues whose function is the production of the mucin required by the interfibriller cement substance.

(E. B. Frink in "Chemical Abstracts".)

A NEW METHOD FOR COLLECTING CATTLE SERUM.

Some difficulty has been experienced in laboratories, in obtaining clear serum from the blood of cattle, particularly during the winter months and in glass botles which have been sterilized several times.

Dr. E. A. Watson, Chief Pathologist at Ottawa, has devised a simple method of overcoming this feature as is as follows,—

One per cent. of the volume of the blood to be taken is reserved for liquid petrolatum, or in other words, one half of a c.c. of liquid parafin is placed in a 50 c.c. bottle before sterilization. The parafin prevents the blood, during clotting, from adhering to the sides of the bottle. The sample left to stand overnight at room temperture will readily produce clear serum. As the oil is insoluable the property of the serum remains unchanged. The layer of the oil on the surface of the serum will also tend to inhibit the growth of ordinary aerobes, thus iliminating a certain proportion of contaminations.

Dr. E. D. Wright '21, who is practising at Kempville, Ontario, and lecturing in Veterinary Science at the Kempville Agriculture School is finding his work quite profitable and very interesting.

Dr. C. H. Weaver '11 of the Pathological Laboratory, Ottawa, called at the college on Saturday, January 28.

Dr. D. Baskett '20 has recently been appointed to the Meat Inspection Division and will be located at Toronto.

Dr. C. Mackie '16 is another recent appointment to the Meat Inspection Division, Toronto.

Dr. J. C. Phillips '21 has been transferred from the Meat Inspection at Toronto to Field Work at Medicine Hat, Alta., under Dr. Hargrave.

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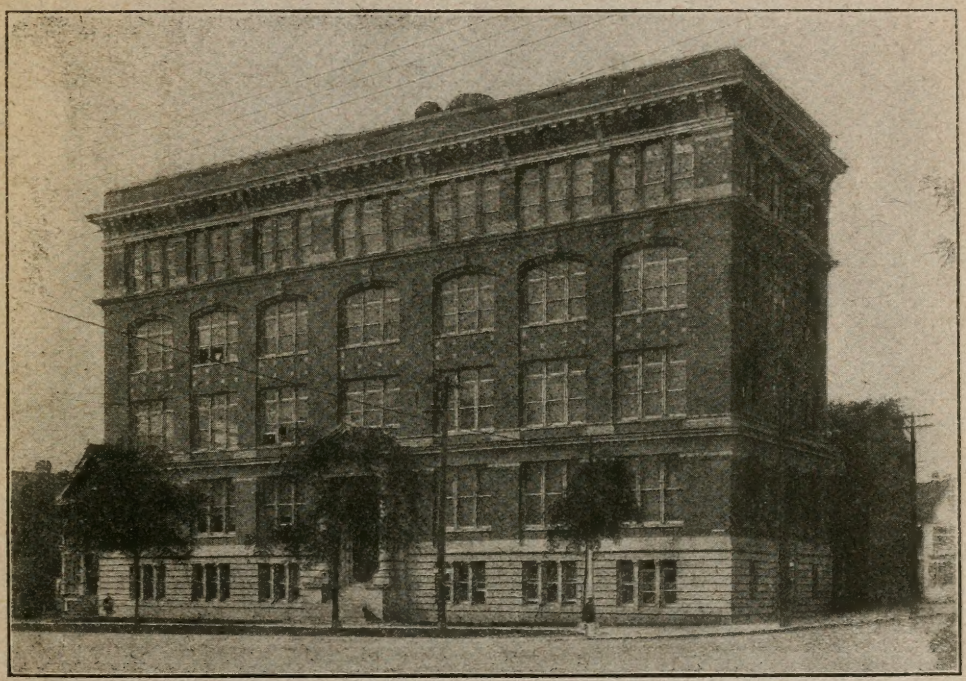

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